INDIA RUBBER WORLD

CAOUTCHOUC GUTTA-PERCHA

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LOOKING BACK AT 1911.

THE past year, during which THE INDIA RUBBER WORLD completed its twenty-second year of continuous publication, has been one of exceptional industry in and about our office, for it has been a busy year in the whole rubber world and we have no thought of lagging behind. During the twelve months ending with our December issue we gave our readers 562 pages of carefully prepared, and we trust informing and valuable, reading matter covering every phase of the rubber industry. This is over 100 pages more reading than we printed in 1910, or in any preceding year.

It is hardly necessary to refer in detail to the contents of these 562 pages, but it may not be improper to make special mention of the notably comprehensive description which appeared in our August issue of the great rubber exposition held in London in June and July, and also of the series of eight letters by the editor on rubber conditions in Dutch and British Guiana, giving the result of his observations during several months of travel in those interesting but to most rubber men unfamiliar countries.

Two events occurred during the year, one of minor importance and the other of great moment to this publication. The first event referred to was the moving of our offices from the downtown to the new uptown business center of New York. Our new quarters are in the heart of the new commercial district of the metropolis, close to the great hotels where our out-of-town friends would naturally take up their abode while in this city, and within two short blocks of that limitless repository of information, the palatial Public Library, from whose stores we expect liberally to draw, and to whose fund of information we hope modestly to add. We do not assert that it is owing at all to our example, nor due primarily to the desire to be in our immediate vicinity, but it is interesting to note that the greatest of American rubber corporations has announced that it also will soon desert its downtown location and move into its own marble skyscraper even further uptown.

The other event of the past year that affected this office, and affected it deeply, was the sad taking off of Mr. Hill, for many years the associate editor of THE INDIA RUBBER WORLD. This blow came most unexpectedly, early in February, and inflicted an incalculable loss upon this publication. For twenty-one years he had stored his wonderfully retentive memory with a fund of information bearing upon every conceivable phase of the rubber industry, which reposed in his orderly mind ready to be drawn on and used at a moment's notice. Few men have ever possessed such a store of knowledge pertaining to any industry or been able to put it to such instant and effective use.

In the rubber world at large events have been on the move, some moving rapidly, some more slowly, but on the whole showing marked progress. Rubber planting has gone on with great strides and one specially significant incident has been the purchase on the part of many rubber manufacturers of tracts of land for their own rubber plantations. The product of rubber plantations during the past year has been about double that of the year before. The shipments from the Amazon country have remained about the same as in 1910.

Crude rubber prices declined during the first six months and have been fairly stable during the last six months. being highest in March, when Upriver fine sold at $1.68, and lowest in June, when the same quality dipped to 94 cents.

In the manufacturing field the year has been one of average activity in most departments, while in the case

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of tires, night shifts have been the rule in all factories of repute and standing. Tire exports for the first time have exceeded the two million dollar mark, and have equalled the total value of all automobile exports six years ago, including tires and all accessories. The dread fear so often expressed that the country was full of people who had mortgaged their last possession to own a car, and that they were bound to be swept into insolvency in shoals, their touring outfit be put under the sheriff's hammer, and the whole automobile industry be badly frost-bitten, has not materialized; for the cry for cars and tires is louder than ever.

Footwear has not been as brisk as its makers would have liked, nor have mechanical goods experienced any noteworthy boom, but taking the year all in all its rubber products will amount in the United States to two hundred million dollars, which is five times the value of our rubber products twenty years ago.

Going abroad, the great rubber event of the year was the Second International Rubber Exhibition, held in London in June and July—an unqualified, one might say, a gigantic success, and a great influence for rubber progress all over the world—albeit no one was found who, in the opinion of the committee, merited the silver trophy offered by THE INDIA RUBBER WORLD for the best system of extracting latex from the *Castilloa elastica*. However, the cup is still there intact and untarnished and somebody will yet devise a method of *Castilloa* extraction that will meet with the approval of the judges.

The old search for synthetic rubber has met with substantial reward—scientifically, if not monetarily. At any rate enough progress has been made to encourage still further effort.

In regard to general business conditions in the United States, they are distinctly brighter now than they were three months ago. Then, owing to the inglorious rejection by Canada of the reciprocity treaty, the zealous pursuit of "bad trusts" and apparently of some good trusts, too, by the government, the leaders in large commercial enterprises were greatly perplexed as to what course to pursue. To be sure the tariff still hangs like a cloud in the business sky, but there is no longer a fear that the administration will harass an enterprise simply because of its size, and there is without question a more general inclination to look on the bright side than there was a short while ago. That there will be any pronounced business boom with a new presidential adjustment only a few months away is, of course, most improbable, but a dominant note of "Cheer up! the worst is over!" pervades the air.

PLAUSIBLE PESSIMISM.

THERE are many rubber prophets in these days of plantation statistics, and their utterances are of a certain value. Figures may not lie when they relate to things of the past, but when they deal with futures they may deceive disastrously. In rubber manufacture, rubber markets and rubber production, the unexpected has been happening so constantly for years past that it should give the most self-assured predictors an occasional qualm of doubt. We know, to be sure, how wonderfully planted rubber in the Middle East has "made good." We can estimate increases in production as the plantations have matured, and so far are on solid ground. But suppose that the system of tapping followed so far suddenly proves a detriment to the tree, and it demands a rest? Wild *Heveas* that have not been bled half so thoroughly, that have enjoyed months of rest, where the cultivated prototype gets only days, lessen their flow and go almost dry—not often, but sometimes. May this not happen on a large scale where the trees are forced to yield their very last drop? Or may not jealous nature suddenly outwit the vigilant scientists who are ever on the watch for leaf, root and bark disease and send some virulent scourge that shall wipe out *Hevea* in its new home? This is not to alarm the rubber investor; it is not to bull the rubber market; it is not even to cheer the Brazilian—it is simply to point to the utter fallacy of quoting figures of production three, four and five years ahead. In rubber as in no other commodity the unexpected always happens. So, if we expect plantation disaster, and a sudden blow to planting—it may not happen.

THE DUTY ON RUBBER WASTE.

AN interesting decision was recently rendered by the board of the United States General Appraisers in the case of a Philadelphia importer of waste rubber, who claimed free entry for a certain importation under paragraph 591 of the Payne-Aldrich Tariff Act, which enters rubber waste free where it has been "worn out by use." The chief witness for the importer described a certain part of the merchandise as consisting of rubber shavings produced in the manufacture of certain hard rubber articles. The board decided that the importation was dutiable at 10 per cent. ad valorem, under paragraph 479. "We are of the opinion," said the board, "that the testimony fails to show satisfactorily that the waste rubber in ques-

tion has been worn out by use, and even in the event of a certain portion of the importation being of that class, the claim of the importers could not be entertained for the reason that they did not segregate the two grades of the merchandise or show by competent testimony the relative proportion of each grade."

Under this decision it would appear that if an importer wishes to enter rubber waste free, he must separate the waste which has been "worn out by use" from waste that cannot be so described. He can then secure free entry for the former class, and for that only.

PATENTS AND THE RESTRAINT OF TRADE.

THE decision of the United States Circuit Court at Baltimore in the suit brought against the corporation usually known as the "bath tub trust," is exceedingly interesting in that it brings to the front the use of the patent law as employed to control the sale of certain commodities.

It appears that the bath tub combination sought to control the market on certain bath tubs by reason of the fact that it had entered into an agreement with the patentee of a device called an "enamel dredger," which was used in the making of these tubs. The court in deciding that this was an illegal combination in restraint of trade, took this ground: "A patent is a grant of a right to exclude all others from making, selling, or using the invention covered by it. It does not give the right to the patentee to sell indulgencies to violate the law of the land, be it the Sherman Act or any other." It took the ground that while the law gave to the inventor the right to monopolize that invention for a certain length of time, it did not give to the patentee "the right to monopolize anything else," saying that the patentee may not restrain trade or attempt to monopolize it in anything except that which is covered by his patent.

Whatever the ultimate legal decision may be on this matter, to the ordinary layman the question would not appear one difficult of solution. If the device or tool covered by the patent is one that is absolutely essential to the manufacture of certain goods and without the use of which they could not be made, it would certainly appear that the law giving to the inventor or his assigns, a monopoly on that particular device must necessarily include the monopoly of the goods which cannot be manufactured except through the use of that device; but if these goods can be manufactured in some other way, even though the use of this patented device would make it easier and cheaper to produce them, then it would appear to be good reasoning that the manufacture and sale of these goods could not be legally controlled by a concern simply because of its ownership of a certain valuable but non-essential patent.

THE EMPLOYER'S RESPONSIBILITY.

AN estimable technical contemporary, published in London, deeply deplores the great mass of legislation which has lately been passed by the English Parliament tending to lighten the burdens of the workman, with the attendant result in many cases of increasing, to some extent, at least, the burden of the employer. It refers particularly to the Workmen's Compensation Act and the National Insurance Bill. In comparing the old system, under which the amount of liability assumed by the employer in the case of a workman's disability was almost entirely voluntary, with the present system of legal enforcement of the employer's liability it remarks:

"Take the Workmen's Compensation Act. Compare the position of the workman employed by a humane employer fifteen years ago and the position of a similar workman today. Suppose him injured and placed on the sick list. On pay day the employer would most likely say, 'We had better send Tom his wages. Poor chap, he has a wife and family to keep!' And the result? Realizing that he was being kindly treated, Tom would try to get back to work as soon as possible. If unable to do his regular job, he would clean out the yard or assist as best he could. But now, if Tom goes under, it is the hard-hearted insurance company that he has to deal with. He gets half his wages; is encouraged to believe that he will continue to get half wages so long as he is ill, and, getting to like an idle life, he hangs about and becomes a worthless malingerer."

This is an interesting picture, and its deductions would undoubtedly be fairly sound provided all employers were humane and inclined to regard their workmen with benevolent sympathy. Probably the great majority of employers may be so described, but if there are some who are otherwise and would yield to the workman only that which he could legally exact, it is obvious that the passing of laws making it obligatory for such employers to recognize their responsi-

bility towards their employes is thoroughly in line with our best social development.

During the last two years a great deal of legislation has been enacted in the various states, particularly in the Eastern manufacturing states, looking to the betterment of the workman's condition. Many such laws have been passed in the state of New York, and, according to reports of the State Commission of Labor, the condition of factory workers during the last decade has vastly improved.

A number of state commissions and bureaus have been appointed to investigate various phases of labor in factories, and they have performed a great amount of useful work: For instance, the Bureau of Mediation and Arbitration, which has succeeded in effecting the peaceful and satisfactory settlement of many disputes. Again, there is the American Museum of Safety, whose object it is to investigate carefully the causes of accidents, to discover and demonstrate means of prevention. In many other ways the legislature of New York during recent years has worked for the lightening of the workman's load. If some part of this burden has been shifted to the employer's shoulders, it is open to question if any considerable number of employers have seriously objected. Many of them undoubtedly share the feeling of one large manufacturer, who recently said:

"Let them legislate to make better conditions for the workers. Wise legislation in that direction is a grand thing The more comfortable my employes are, the better they are protected, the more and better work they will do. My efforts are to keep ahead of the legislature, but if they can point the way to improve still further I shall be glad to follow."

The interdependence of capital and labor, and, in fact, of all members of our social structure, is now so thoroughly recognized that every man, employer or not, who views our American life in anything but the narrowest way must welcome all reasonable legislative enactments that tend to improve the condition of any considerable number of people.

WHAT A FEW YEARS HAVE WROUGHT.

THE Department of Commerce and Labor has recently published a few statistics which give in the most condensed form a graphic picture of the marvelous changes that have taken place in this country in a little over a century. The figures given cover the period between 1800 and 1911. In 1800 the area of continental United States was 843,255 square miles, in 1911 the area was, and in fact has been ever since 1853, 3,026,789 square miles. The population since 1800 has increased from 5⅓ million to 93¾ million; the money in circulation from $26,500,000 to $3,228,627,002 and the per capita circulation from $4.99 to $34.35. Exports have increased from $32,000,000 in value to over $2,000,000,000 and imports from $91,000,000 to $1,500,000,000. And all this has happened within a space of time barely more than the span of a human life.

THE HUMANITARIANISM OF THE MOTOR-CAR.

IN addition to the incalculable value of the motor-car commercially, it has another and very obvious advantage in its humanitarianism. This is a phase that is brought home anew to every observing person at the coming of the first winter snow storm. The smooth asphalt pavement, so much in vogue in many of our cities, is at best an atrocious device for the discomfort and distress and disabling of that faithful fellow, the horse; but add to it a fall of snow, which, as is usually the case in city streets, first melts, then freezes and melts again, what earthly chance have the horses? On avenue and street you see them sliding, slipping, falling, lying helpless on the slippery pavement, or struggling to regain an impossible footing. To any human being of even the slightest humane instinct, it is a distressing sight; to the horse it means bruises and broken bones. And while one watches this spectacle, multiplied ten thousand times over in a large city, one cannot help noticing how easily and comfortably and efficiently the motor car rolls by, its rubber tires gripping the slippery asphalt, and riding easily over the snow and ice. Viewed from the humanitarian standpoint, it certainly will be a great relief when the last draft horse has disappeared from city streets and the trucking industry is turned over exclusively to the motor-car.

HENRY C. PEARSON, editor of THE INDIA RUBBER WORLD, sailed December 18 on the *Coppename* of the Royal Dutch West India Mail, with the expectation of passing the winter in the tropics, his objective point being the valley of the Orinoco. It is a pleasure to announce that his observations in the rubber country will be embodied in a series of letters, illustrated as heretofore with photographs of the scenes described.

CENSUS FIGURES OF THE RUBBER INDUSTRY.

While a special bulletin affecting the rubber industry, as shown by the census of 1909, has not yet been issued, the subjoined preliminary details, specially furnished to THE INDIA RUBBER WORLD by the Director of the Census, will be found of interest, as demonstrating the expansion of that branch since 1904.

One of the most salient points of this return is the increase of capital as compared with 1904, of more than 60 per cent., while the aggregate value of products has only advanced by about 27 per cent. While this result by itself implies a smaller return upon capital invested, that fact is further illustrated by analyzing the figures of "value added by manufacture":

	1904.	1909.
Cost of materials used	$80,002,476	$122,745,102
Value added by manufacture	75,012,915	74,649,536
Total value of products	$155,015,391	$197,394,638

Thus an increase of about $42,000,000 in the total value of products is more than offset by the higher amount of nearly $43,000,000 paid for raw materials. Consequently, the rubber industry in 1909 treated $123,000,000 worth of raw materials with an increase of selling value through manufacture of a slightly less amount than had accrued in 1904 upon $80,000,000 worth.

That this increase of business has been accompanied by diminished profits may be further accentuated by a comparison of general results for 1904 and 1909:

	1909.	1904.
Cost of materials used	$122,745,102	$80,002,476
Salaries	7,840,700	4,538,912
Wages	25,136,976	20,084,166
Miscellaneous expenses	16,360,993	11,303,336
Principal elements of cost	$172,083,771	$115,928,890
Estimated difference	25,310,867	39,086,501
Selling value of products	$197,394,638	$155,015,391
Capital	162,144,564	98,979,636

While the above difference is not officially shown, it is an obvious deduction from the preceding figures, and includes the profit on the operations, as well as interest on capital, conducted during the respective years. It is, in fact, the only source of such profit. That this margin was in 1904 about $39,000,000 upon an estimated cost of $116,000,000 (about 33 per cent.) and had fallen in 1909 to $25,000,000 upon $172,000,000 (about 15 per cent.), is in harmony with the expense of the industry at large as to the recent shrinkage of manufacturing profits. A falling off in margin of $14,000,000 in conjunction with an increase of capital by $64,000,000 shows that the rubber industry in 1909 was making considerably less profit than was the case in 1904.

Other interesting comparisons are deducible from the official figures. In 1904 the proportion of cost of materials to value of product was about 52 per cent., while in 1909 it had risen to 62 per cent. The average number of workers employed rose about 12 per cent., and their average earnings 25 per cent. In conjunction with the 27 per cent. increase of production, these figures would indicate the greater productiveness of individual workers, while the development of existing plants rather than the starting of new ones is shown by the respective numbers of establishments having been 265 for 1904 and only 267 for 1909.

The detailed figures are as follows:

THE RUBBER INDUSTRY—RUBBER BELTING AND HOSE, RUBBER BOOTS AND SHOES, AND RUBBER GOODS NOT ELSEWHERE SPECIFIED, COMBINED, 1909 AND 1904.

	Census. 1909.	1904.
Number of establishments	267	265
Capital	$162,144,564	$98,979,636
Cost of materials used	122,745,102	80,002,476
Salaries	7,840,700	4,538,912
Wages	25,136,976	20,084,166
Miscellaneous expenses	16,360,993	11,303,336
Value of products	197,394,638	155,015,391
Value added by manufacture (products, less cost of materials	74,649,536	75,012,915
Employes:		
Number of salaried officials and clerks	6,692	3,698
Average number of wage-earners employed during the year	49,264	43,873
Primary horsepower	122,436	86,808
Separate figures of 1909 products are:		
Belting and hose, rubber		$19,238,324
Boots and shoes		49,720,557
Rubber goods not elsewhere specified		128,435,747
		$197,394,628

In the above statement is included the value of all products of establishment reported as manufacturing rubber goods as their chief product. The classification of "rubber goods not elsewhere specified" includes the manufacture of rubber tires, elastic webbing, rubber clothing, mats, etc.

With reference to the augmentation of 27 per cent. in value of products, it is of interest to note that while there has been an increase of about 12½ per cent. in the number of wage-earners, and of 25 per cent. in their earnings, the number of salaried officials and clerks has risen by more than 80 per cent., and their total remuneration by nearly 75 per cent.

In addition to the above named output, it has been possible thus far to identify a certain amount of products, consisting in part or wholly of rubber, manufactured by establishments engaged in other branches of industry. The total value of such products amounted to $1,059,361. Hence the production of rubber goods seems to be practically confined to houses making a specialty of that branch of manufacture.

PROPOSED CHANGES IN GOVERNMENT RUBBER SPECIFICATIONS.

The limitation imposed by official specifications of Fine Upriver Pará in the supply of rubber manufactures to the United States government, has prevented the use for that purpose of other standard descriptions. Fine Pará now constitutes only 20 per cent. of the world's supply, and in view of the prospective increase in the yield of plantation rubber, will in a few years probably represent only 10 per cent., which fact was brought before the Washington authorities on December 15 at a conference between them and a committee representing the rubber manufacturers interested.

It is understood that among the practical steps to be taken are an exchange of data and the formulation of recommendations, to be submitted, with the approval of all manufacturers, to the committee representing the government. A joint committee, which will be fourteen in number, seven in each of the interests represented, will carry out the plans outlined at the conference.

Uniform Tests for Rubber Products.

IN a circular addressed to the German rubber industry, the Gross-Lichterfelde Material Testing Bureau has elaborated a plan for the application to rubber products of tests, similar in principle to those which have been adopted for paper, lubricants and cement. This plan, it is remarked, depends for its success upon the co-operation of rubber manufacturers and consumers, following the general ideas outlined in the INDIA RUBBER WORLD in the issues of October 1, 1911 (page 23) and December 1, 1911 (page 107).

With this view it is proposed to carry out, from old and new standpoints, a series of tests upon various standard compounds of soft rubber. The principal object will be to investigate the processes already in use and if necessary to supplement them with due regard to practical conditions. For this purpose it will be necessary for the Bureau, in the first place, to test as many compounds as possible; then discussing the results with representatives of the various factories, in order (as was the case with paper) to arrive at generally recognized and uniform methods of testing.

As the preparation of the samples for testing could not be fully carried out in the laboratory of the Bureau, and would take too long, it is considered preferable for these samples to be prepared in the regular course of factory operation. The Bureau therefore requests the support of the German rubber industry in the form of the necessary samples. As far as can be foreseen, the results of the contemplated trials will be of considerable advantage to the rubber industry, while also promoting in a general way the development of mechanical testing, in perfecting which the most diverse technical circles are interested. Special attention is directed to the confidential nature of these tests and to the official secrecy which will attend their detailed operation. In the subsequent publication of results care will be taken to prevent the interests of the various rubber factories from suffering, the names of the manufacturers not appearing in connection with the samples tested.

METHODS OF TESTING.

The plan of testing includes tests for rupture, pressure, wear, durability, hardness and elasticity.

Under the head of rupture, tests will be made as soon as possible of ten ring samples, with measurements of extension, the appearances of hysteresis being recorded as to some of the samples. Ten further tests will be made with ring samples which have been subjected to preliminary tests in the Martens extension machine. Another series of rupture tests will deal with the condition (1) (five tests) after the samples have been kept a year, without special protection from light, and (2) (fifteen tests) after being subjected to an accelerated process of ageing, during one to eight days, at a dry heat of 150 deg. F.

Tests of pressure, twelve in number, will be made with rubber cylinders in a press on the Martens system, change of form and elasticity in conjunction with pressure being thus defined.

Tests for wear, three each, will be made with balls of 1 1-5 inches diameter by an apparatus on the Martens system, and with rings by an apparatus on the Mai system. A third test of the waste discs resulting from the stamping out of the rings is being at present studied.

Tests for durability will be made in two forms, with four rings on the Martens-Schopper durability testing machine, and with ring samples stretched upon glass plates, conditions being observed in a room and in the open air, as well as under dry and moist heat.

Tests for hardness will be made with the Brinell-Martens ball tester, while tests for elasticity would be probably made with a new apparatus still to be tried.

SAMPLES FOR TESTING.

For the carrying out of the proposed tests there would be required of each description of rubber to be tested:

a. 1 sheet of rubber, ¼ inch thick, 24 inches long, 24 inches wide;

b. 12 rubber cylinders of 2-5 inch diameter and 2-5 inch height;

c. 5 rubber balls of 1 1-5 inches diameter.

The samples a to c are to be molded out of the same compound in one operation and to be vulcanized under similar conditions. The vulcanization should be effected as far as possible in the same apparatus, but in any case at the same temperature and with equal duration. The separate plates should be as far as possible uniform in thickness, with a smooth surface, free from blisters, while the cylinders must have smooth surfaces and clean edges. The balls must be special, with a smooth and regular surface.

When samples are sent in, the date of vulcanization is to be given. They should be sent, as far as possible, immediately after manufacture, so that they may be tested under approximately uniform conditions. The samples should only be prepared as soon as a request for same is made by the Bureau, to prevent the accumulation of samples waiting to be tested. The sheets ought not to be rolled but packed in cardboard

QUESTIONS TO MANUFACTURERS.

To facilitate the work of the Bureau and to enable it to call for the necessary samples, a sheet of questions accompanies this circular, in connection with which the respective manufacturers are requested to indicate the classes of rubber goods they make, and of which they can furnish samples in accordance with the above specifications, indicating in every case the origin of the crude rubber used.

Subjoined is the classification of the various branches of the industry, in accordance with which the replies of the various manufacturers are to be given:

1. Hose for technical and laboratory purposes (excepting pneumatic hose).
2. Parts of valves.
3. Buffers.
4. Parts of packings.
5. Tires. *a.* Solid. *b.* Pneumatic. *c.* Covers.
6. Insulating materials (cable coverings, etc.).
7. Rubber driving belts.
8. Rubber transport belts.
9. Rubber rolls.
10. Roller cloths.
11. Rubber thread.
12. Rubbered fabrics.
13. Floor tiling.
14. Rubber stoppers.
15. Rubber compounds for surgical articles.
16. Rubber compounds for other purposes not specified.

REGULAR QUALITIES TO BE SAMPLED.

Particular stress is laid upon the fact that in the interest of the most advantageous utilization of the results of the tests, considerable importance attaches to the samples not being from specially prepared compounds, but that they should represent the compounds regularly used in the manufacture of the articles indicated by the respective manufacturers as constituting their products. Only in this way can the comprehensive work of the bureau produce the anticipated results.

United States Statistics of Malayan Rubber Growing.

RECOGNIZING the importance to the American rubber and kindred industries of full and detailed information as to the development of rubber culture in the Malay States, a systematic investigation of the whole question has lately been made by the United States Government. This difficult task has been ably carried out by Mr. D. Milton Figart, United States Vice-Consul General in charge at Singapore, who has compiled a report covering the four years 1907-1910, which (though not yet published) THE INDIA RUBBER WORLD, has by the courtesy of the Bureau of Manufactures, Department of Commerce and Labor, had an opportunity of examining, and of which the leading features are reproduced below.

The report includes (1) rubber acreage, yield and production; (2) cost of development per acre and of production per pound. Other points touched upon are (3) comparative quality of product, probable output, market value and dividends; while (4), labor, diseases and other important points likewise receive attention. Appealing, as it does, alike to the rubber manufacturer and to the economic student, this skilfully compiled report amply repays perusal.

Dealing with the history of the "rubber boom," which occurred within the last year covered by the report, Mr, Figart refers to the inherent soundness of the rubber trade, as being demonstrated by the relatively small number of failures, which marked the subsequent decline in values.

MALAYAN ACREAGE AND PRODUCT.

Taking the first and last of the four years dealt with, the total rubber acreage of Malaya rose from 179,227 acres in 1907 to 362,853 in 1910, thus having more than doubled within the period in question. That the grand total of production increased from 2,278,870 pounds in 1907 to 14,368,863 pounds in 1910, would show the largely augmented productiveness of Malaya as the result of methodical and scientific rubber cultivation.

The acreage planted on December 31, 1910 (362,853 acres) represented 632 estates (as compared with 534 a year earlier) with an acreage of 292,033. Of the 1910 acreage about one-fifth had been planted during that year, while the plantings of 1909 only represented 15 per cent. of the total cultivated acreage at the end of that period.

Ceylon, while producing in 1910 more than six times as much rubber as in 1907, had a much smaller quantity to start with. Consequently the excess in the Malayan yield, as compared with that of Ceylon now amounts to about 11,000,000 pounds, as illustrated by the following comparison:

	1907. Pounds.	1910. Pounds.
Malaya	2,278,870	14,368,863
Ceylon	556,080	3,298,652

COMPARATIVE ACREAGE IN THE FAR EAST.

Much interest attaches to the following details of the present rubber acreage in various Asiatic countries:

RUBBER ACREAGE. 1910.

Malaya	362,853
Ceylon	241,885
Netherlands Indies	150,000
Burma	13,525
Cochin China	11,000
South India	30,000
Total acres, 1910	809,263

From a comparison of this table with the figures already quoted, it would seem that Malaya, with 362,853 acres, produced in 1910 14,368,863 pounds, while Ceylon, with 241,885 acres, only produced 3,298,652 pounds.

COST OF DEVELOPMENT PER ACRE.

Following the above important statistical facts, is a valuable estimate prepared by Mr. C. M. Cumming, manager of Linggi Plantation, Limited, Selangor, of the cost of opening up a rubber plantation of 1,000 acres (250 acres each year) including 10 per cent. for contingencies. The cost is estimated as representing: First year, $19,681; second year, $18,588; third year, $22,649; fourth year, $33,902; fifth year, $26,741; sixth year, $27,053; seventh year, $31,240. The total cost (without interest) would thus far be $179,854, but striking off respectively one-eighth, one-third and five-eighths for the last three years, the amount would be reduced to $147,969, or approximately (as Mr. Figart states) $150 per acre.

Taking the principal items of gross expenses for the first and seventh years, the following results will be shown:

	1st year.	7th year.
Premium and survey	$2,272	——
Clearing 250 acres	2,130	....
Planting 250 acres	852	....
Plants and seeds	1,136	....
Bungalow	1,704	....
Hospital, etc.	1,704	....
Rent	568	2,272
Superintendence	2,272	4,260
Weeding	1,278	8,520
Machinery	....	5,680
Other expenses	3,976	7,668
	17,892	28,400
Contingencies, 10 per cent.	1,789	2,840
	$19,681	$31,240

The estimate of $150 an acre, it will be remembered, is arrived at in conjunction with five-eighths of the amount of the expenses for the seventh year, being charged to revenue.

YIELD PER ACRE.

According to the estimate of prominent planters, the annual yields per acre may be counted as follows:

	Pounds.
Fifth year	50
Sixth year	150/188
Seventh year	250/281
Eighth year	350/381
Ninth year	400/404
Tenth year	400/577
Eleventh year	400/633

While well managed estates have been producing from 500 to 800 pounds of rubber per acre, it is remarked that in many cases these figures will not be reached. At the same time, it is added, these conservative estimates will probably be greatly exceeded, if tapping is delayed until the proper period has elapsed, and is then carried on in the most scientific manner.

ESTIMATED RESULTS AT FIFTH AND TWELFTH YEARS.

In *pro-forma* calculations given of prospective annual results from the fifth to the twelfth year, the lowest of the above estimates of quantity is used as a basis of calculation.

The scope and general features of the above-named calculations are illustrated by the following estimates, applicable to an estate of 1,000 acres:

Fifth year—250 acres at 50 lbs. per annum = 12,500 lbs. at $0.72 per lb.	$9,000
Less cost of production at $0.48 per lb.	6,000
(Estimated result)	$3,000
Twelfth year—1,000 acres at 400 lbs. per annum = 400,000 lbs. at $0.72 per lb.	$288,000
Less cost of production at $0.36 per lb.	144,000
(Estimated result)	$144,000

COST OF PRODUCTION PER POUND.

As to this crucial point, it is stated that the average cost per pound, for 33 estates taken indiscriminately, equalled 1s. 2½d. or $0.29. This average, it is noted, is on a basis including young trees. That in the estimates of results just referred to, the cost of production is figured at 36 cents, is in harmony with the conservative nature of Mr. Figart's other calculations.

COMPARATIVE QUALITY OF PRODUCT.

On this subject Mr. Figart makes the following recommendation:

"Plantation rubber, while superior to fine hard Pará in resinous and mineral tests, has generally proved inferior in strength, and more care must be taken in working it up, to prevent a soft product resulting. Recent tests, however, have been more satisfactory; and with improved methods in cultivating, collecting, coagulating and preparing (plantation) rubber, it is confidently expected that the future product will approximate fine hard Pará in every important test."

PROBABLE OUTPUT.

Mr. Figart's view, that nothing definite can be said about the probable output of rubber, is a statement of importance. At the same time, he quotes the subjoined estimates of two prominent rubber men, which are very close to each other, which he characterizes being "as good estimates as can be obtained":

Production, 1910.

Malaya alone	14,368,863 lbs.	(or about)	6450 tons
Ceylon alone	3,298,652 "	" "	1450 "
Total Far East	17,667,515 "	" "	7900 "

Estimate No. 1 (Malaya alone).

	Tons.
1910	6,450
1911	11,000
1912	18,000
1913	24,000
1914	33,000
1915	45,000
1916	65,000

Estimate No. 2 (for total Far East).

1910	7,900
1911	16,000-17,000
1912	25,000-30,000
1913	40,000-45,000
1914	55,000-60,000
1915	70,000

When figures in respect to Ceylon the Netherlands Indies, Burma, etc., are added to those from Malaya in estimate No. 1, the result will be very close to that shown by the second estimate.

MARKET VALUE AND DIVIDENDS.

In connection with these points Mr. Figart remarks that the following conditions may be assumed:—

COST OF PRODUCTION, 36 cents per pound; (some estates now turning out rubber for less than 24 cents.)

SELLING PRICE, 2 shillings, or 48 cents.

PROFIT, 12 cents per pound.

On the basis of the two estimates previously referred to of 400 and 577 pounds per acre for ten-year-old trees, it is calculated that the profit per acre would be respectively $48 and $69. Taking even the lower figure, it is shown that in the cases of seven estates chosen indiscriminately, the profit would represent for original investors from 17.4 per cent. to 61.5 per cent., while on the present high market values, the shares would pay from 2.6 per cent. to 6 per cent. These results, it is urged, show the sound basis of the industry, even with appreciated share values.

LABOR.

A constant increase is recorded in the arrivals of Chinese immigrants at both Singapore and Penang; the number landed at the former port in 1910 having been 216,321, as against 151,752 for 1909. The number arriving at Penang was 59,414; being 37 per cent. in excess of that recorded for the previous year. It being calculated that by 1920 there may perhaps be a million acres of rubber trees in Malaya, as compared with about one-third that area at present under cultivation, this possible threefold increase would necessitate a labor force of 600,000 to 700,000 coolies, against the 200,000 at which the present number has been estimated. The prospective increased cost of the coolie labor required to meet the needs of the estates is a factor to which Mr. Figart calls attention, as possibly enhancing the cost of Malayan rubber production.

CROPS.

A distinction as to accessory crops is drawn between catch-crops and cover crops. The former description is grown for the purpose of getting revenue, during the first four or five years, up to the time when the rubber is at the producing stage, but agriculturally they are not to be recommended. In the Federated Malay States, less than 6 per cent. of the rubber acreage was planted in 1910 with catch crops (principally coffee), as against 10 per cent. in 1909, while in the Straits Settlements the percentage was only 28 per cent., as compared with 40 per cent. for the previous year.

Cover-crops are planted between rubber, at present chiefly with the object of reducing the expenditure on weeding. Mr. Figart remarks that no cover-crop can be unconditionally recommended in Malayan plantations; considering the best procedure at present to be absolute clean weeding. He adds that if a leguminous and easily controlled cover crop were introduced, it might be preferable even to clean weeding, particularly if it paid the cost of its own production.

RUBBER SEED OIL AND POONAC.

Although experiments in crushing rubber seeds for the oil and residual poonac have so far been without satisfactory results, recommendations have been sent to planters to instal machinery suitable for the purposes named, so as to continue trials in the direction indicated.

DETAILS OF PLANTATION EXPENDITURE.

In a detailed appendix, the work of Mr. C. C. Malet, formerly connected with the Agriculture Department of the Belgian Congo, and at present a licensed valuator in the Straits Settlements, full *pro-forma* particulars are shown of the various elements of cost of rubber production on a thousand acre estate, on the basis of

400 pounds per acre, and an average per acre of about 120 trees. The cost of production is quoted as a fraction under 26 cents per pound for the estimated annual product of 400,000 pounds.

THE FUTURE OF RUBBER.

Mr. Figart's views on the general situation of rubber are so broad and far seeing that they may with advantage be quoted literally:

"Considerable thought is being given to the question of whether the future plantation rubber industry will be much affected by the wild rubber supply. The present cost of marketing wild rubber is higher than the cost of producing plantation rubber, and with the large quantities of the latter coming on the market in a few years' time (possibly 100,000 to 150,000 tons), there will be a strong tendency in the direction of reducing the supply of wild rubber which can be marketed at a profit. Realizing this, the Brazilian Government is taking steps which will make possible a material reduction in the cost of collecting wild rubber. However, it is the general opinion of manufacturers that the new uses to which rubber will be devoted will absorb the visible supply, and maintain prices at a figure which will allow a liberal margin of profit to investors in plantation rubber. This fact is evidenced by the investment in the Orient of millions of dollars in this industry by a group of American capitalists, but a small percentage of whose holdings is planted and none of which are in bearing."

One planter has the following to say:

"'When the output from the plantations (say 1,000,000 to 1,200,000 acres in more or less full bearing by 1920-22) amounts to over 200,000 tons per year, then, in order to sell this huge output, the price must be reduced so low that many new channels of consumption will be opened up, which means a probable average price of, say, 30 cents per pound at which price it is not at present conceivable that fine hard Pará can be profitably collected even under the best of circumstances,'"

"The above is of course based on a much lower cost of production than the writer has used in this article."

While it has only been possible to reproduce some of the most prominent features, the above summary indicates the leading points of the report, and shows the vast amount of preparation and skilful compilation undertaken by Mr. Figart and his colleagues.

THE NETHERLANDS AND THE LATE RUBBER EXHIBITION.

FOLLOWING up the successful participation of the country in the First Rubber Exhibition of 1908, the Netherlands took a prominent part in the Second Exhibition, held in London from June 26 to July 14 last.

As reported in the August issue of THE INDIA RUBBER WORLD, a strong and representative committee of leading men in both the theoretical and practical ends of the Netherlands rubber industry supported the efforts of the honorary and acting presidents, as well as of Dr. Tromp de Haas, commissioner for the Dutch East Indies. Other committees were formed in Java and Dutch Guiana, which co-operated with the European committee.

In a review of the exhibition, entitled "Verslag over de Internationale Rubber-Tentoonstelling," dated at Scheveningen, October, 1911, Mr. A. G. N. Swart, president of the Netherlands Commission, calls attention in the first place to the important preparatory work undertaken by the Commission. In the fall of 1910 a circular was addressed to the Surinam balata industry, urging participation in the exposition, which step was followed up by similar efforts as to the Dutch East Indies.

Among various facts of interest affecting the exhibition, it is recorded that the Netherlands section was in two divisions, respectively 65 x 75 feet and 35 x 35 feet. The arrangements and decorations of the section were so designed as to preserve and accentuate the Indian character of the exhibits.

STATISTICS OF DUTCH INDIAN RUBBER COMPANIES.

According to details quoted in the report, there are in the Dutch Indies 217 rubber companies, distributed as follows regarding location:

102	with plantations	in	Java.
95	"	"	" Sumatra.
12	"	"	" Borneo.
8	"	"	" Riouw.
217			

The proportions of the total capital furnished by various nations is shown as follows:

	Nominal.	Issued.
Netherlands	$26,620,200	$14,326,760
England	71,627,960	57,210,240
Belgium and France	12,032,000	10,528,800
Germany	664,000	498,400
Sweden	168,000	74,200
America	400,000	400,000
Totals	$111,512,160	$83,038,400

Sample exhibits were received from 45 of these 217 companies, but, being of a representative character, are regarded as fairly illustrative of the rubber planting industry of the Dutch Indies.

Among these 45 exhibitors, 33 belonged to countries other than the Netherlands; the proportion being thus about 75 per cent., or less than that of about 83 per cent., as shown by the distribution of capital. The 33 companies included: 17 English, 8 Belgian, 6 French, 1 Franco-Swiss and 1 German.

THE SURINAM BALATA INDUSTRY.

Among the features of the exhibits was one from the Surinam Commission, representing in graphic form the production of balata at that point during the last 18 years. The figures thus represented were:

	Pounds.		Pounds.
1893	71,702	1902	707,251
1894	238,230	1903	815,696
1895	293,598	1904	571,780
1896	460,926	1905	537,783
1897	360,312	1906	593,815
1898	249,549	1907	763,120
1899	260,828	1908	999,226
1900	459,371	1909	1,382,883
1901	522,528	1910	1,963,882

The balata concessions rose in area from 172,400 acres in 1893 to 2,201,350 acres in 1910.

Attention is called in the report to the fact that the Surinam balata exhibits received a much higher degree of attention from interested visitors than was accorded to the leaf balata from British Guiana or the block balata from Venezuela.

EXHIBITS OF OTHER COUNTRIES.

In the concluding pages of the report a brief summary is given of the exhibits of Germany, Belgium, France, Brazil, the Federated Malay States, Ceylon and the British West Indies.

The report is evidently the result of much thought and detailed observation, forming an appropriate souvenir of the noteworthy occasion it commemorates.

A COMMUNICATION FROM PROFESSOR J. C. WILLIS, of Peradeniya Gardens, Ceylon, announces his resignation as director of agriculture. Professor Willis will be remembered as having discovered wound response in the *Hevea* tree, and as having done much in the past to make *Hevea* culture in the Middle East the success it now is.

Some Views From Guayule Experts.

THE PROPAGATION OF GUAYULE—A CRITICISM.

IN an unsigned article in the November issue of THE INDIA RUBBER WORLD[1], the question of the propagation of guayule by means of cutting is discussed in the light of an "interesting statement," made by Professor Mario Calvino, of the Central Agricultural Station, San Jacinto, Mexico. The writer of the article in question appears to have overlooked the chapter in my book[2] where, under the caption "Vegetative Reproduction," the whole subject is discussed, and appears, also, to be under the impression that my own attitude toward the relative value of forestal operations, as compared with cultural operations, is in favor of the latter as compared with the former. My statement is that the "ultimate and adequate solution of the production of guayule shrub lies in the direction of cultural rather than forestal operations." It is increasingly evident that, inasmuch as no measurable attention has been given to forestal operations in Mexico or Texas, the methods of *forestal conservation* can, in view of the much diminished supply, play but little part in the future production of the shrub. As I have already said in these pages,[3] the manufacturer of guayule rubber has been thinking more of the immediate financial return than of the conservation of the supply of guayule. Abundant evidence may be seen in my treatise on the subject to show that my attitude toward forestal operations indicates their extreme value. It is, however, a fact that practically no attention has been paid to them by owners of guayule lands. Ultimately, therefore, we must, I believe, depend upon cultural operations in the usual sense, and as applied to forestry, since certain forestal operations might yet be made to yield results.

According to Professor Calvino, the propagation of guayule by means of seeds has proved "more or less unsatisfactory in practice." The experience of myself and of certain other students of the subject goes to show that the difficulty of raising seedlings is by no means as great as at first supposed. In the hands of the plant physiologist, it has been shown that it is possible to germinate a very large percentage of the seed. The results attained at the San Jacinto station appear to be due to insufficient study of the problem. In the article to which I refer, it is pointed out that while Professor Calvino was working upon the cultivation of the guayule from seed, Señor Salvador Creci, an agronomical chemist, announced that he had "succeeded in propagating guayule by means of ligneous cuttings." The writer goes on to say that "this idea was approved by Professor Calvino, and thereupon measures were taken to effect the propagation of guayule on this principle, seeing that in this way are propagated the *Anthemis* and the *Chrysanthemum*, which are of the same family as the guayule shrub. Accordingly, plants were obtained, from which "ligneous, seed bearing and herbaceous cuttings were taken for planting in boxes in the open air, and also in frames beneath glass. The herbaceous and seed bearing cuttings germinated in ten days, and the ligneous ones within fifteen days in the frame and twenty days in the open air." Then follow details in regard to later treatment, to which no reference need be made here.

In the first place, there is but slight *a priori* reason for believing that, because some plant of a given family may be reproduced by cuttings, others may also. This is purely a matter for experimental evidence to decide. It is my purpose to point out that the experimental evidence in the case, so far available, is distinctly antagonistic to the impression given by the above quotation. It is pertinent to point out, furthermore, that many plants are known under culivation, which can either not at all, or only with great difficulty and by special methods, be made to strike root from cuttings, and these *only from certain regions of the plant.*

I have already shown[1] that it is possible to propagate guayule by means of "ligneous" cuttings. I must, however, say that it is not sufficient to use this adjective. It is possible to raise plants of guayule from "ligneous" cuttings made (a) of the root; and (b) in such a manner as to involve the lower portion of the stem just above the tap root; and (c) it is further possible to make ligneous cuttings from new shoots which have been forced to grow *from the base only of the main stem* by cutting back close to the top of the tap root. I have, furthermore, shown that *stem tissue confined to the base of retoños will regenerate roots*, but beyond this, the evidence derived from a very careful study of hundreds of cuttings, herbaceous and woody, both by myself and by my former associate, Dr. J. E. Kirkwood, has afforded nothing but negative evidence. In view of my experiments reported in the volume on guayule, it becomes the duty of those who claim that cuttings may be made with ease from any part of the plant (a claim which has been made in more than one quarter), to furnish perfectly definite and unequivocal *evidence* in support of their statements. This is made necessary by the weight of the evidence to the contrary already in hand, and in view of the danger that capitalists and their emulators may be misled by accounts which furnish incomplete proof of the statements made. I have in mind one instance of a Mexican gentleman, in the employ of one of the prominent guayule companies, who clandestinely (with regard to myself) carried on an extensive experiment, as the result of which he made the assertion that the guayule could be readily propagated by cuttings without the loss of any rubber. It was, perhaps, a piece of good fortune that I was able to make a personal examination of the experiment grounds. Having seen the results for myself, I do not hesitate to assert that not a single plant had been obtained from a cutting of any kind. Perhaps I may cite one experience by way of illustration of the question at issue. Doctor Kirkwood made a large number of cuttings, quite independently of myself. One of these started to grow, and in the course of a week or so not only produced a number of leaves, but flowers as well. As a result of a friendly challenge, the cutting was dug up and examined in the presence of both of us. It turned out that the basal portion of the cutting had, indeed, produced a root, but a critical examination showed that this lower end was simply a portion of the base of the main stem, just at the point at which the tap root leaves it. As my expectation was thus confirmed, it will be seen that there is here more than merely negative evidence. I must furthermore point out, as I have already done elsewhere, that under favorable conditions, not at all hard to establish, guayule cuttings will, in a very large percentage of cases, send out new leaves and appear to be growing. As a matter of fact, however, the appearance is quite deceptive. Although putting forth leaves and appearing vigorous, they are not producing roots, and it takes no great experience to realize that roots are quite as necessary as leaves, if a plant is to grow.

In justice to Messrs. Calvino and Creci, it should be said that by "ligneous cuttings," they may have meant those portions above indicated. In the quotation, which I have had recourse to, there is no direct evidence to the contrary. But until the

[1] Vol. 45: pp. 70-71. November, 1911.
[2] Guayule: a rubber plant of the Chihuahuan Desert. Publication 139 Carnegie Institution of Washington, pp. 193-198.
[3] INDIA RUBBER WORLD, vol. 41, pp. 115-118, January, 1910.

[1] In the book above cited, pp. 193-198.

evidence is forthcoming, those interested must needs be on their guard.

The evidence which they should require for the statement that herbaceous and ligneous cuttings can be made to grow readily or at all, should be the kind which a competent botanist would require. It is necessary to show that roots are actually produced from stem tissue from other regions than those from which I have already shown that roots may be produced. The strength of the evidence, moreover, should be greater or less according to the experience in the field of scientific botany he has had who makes any claims in regard to the matter at issue. It is, finally, of equal importance from the practical point of view, that the facts relating to the *percentage of successful cuttings be given.*

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THE PRESENT STATUS OF GUAYULE.

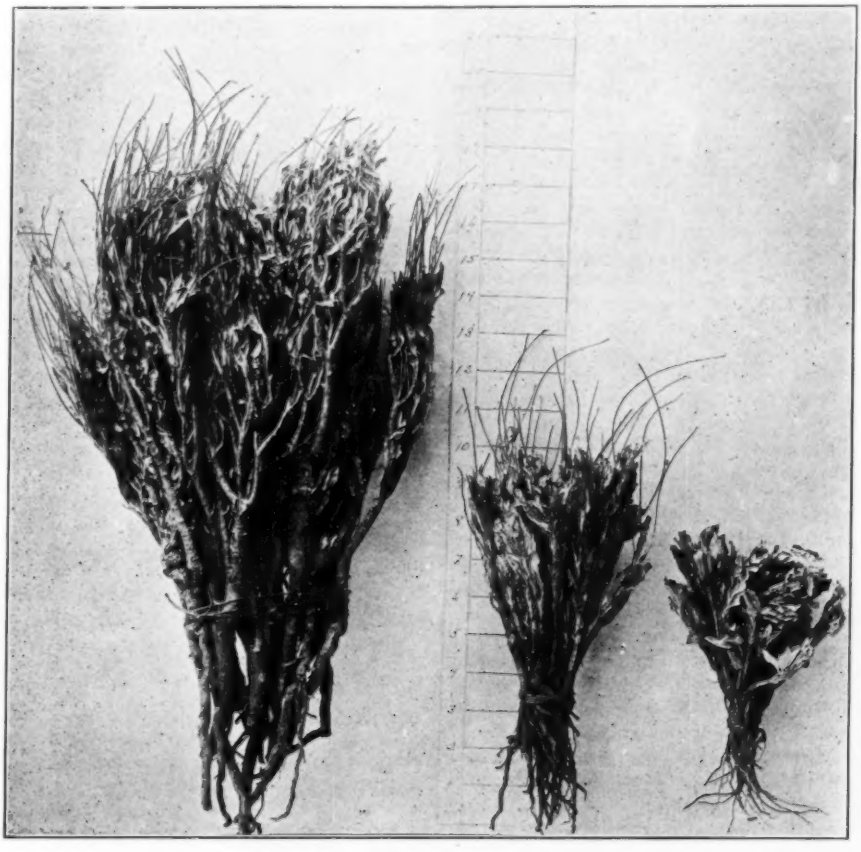
THE present status of guayule shrub (the raw material from which guayule rubber is obtained) is of great interest to the rubber manufacturers of the United States, as this rubber has been an important factor in the trade for the past six years, growing in demand from a few hundred tons in 1905 to a total of over fourteen thousand tons in 1910. The total product for 1911, up to the end of October, was seven thousand four hundred and forty tons. To this will be added the product of November and December of approximately eight hundred tons, making the entire production for this year eighty-five hundred tons. The drop in the production for 1911 may be attributed to two causes, first, the depletion of the shrub supply adjacent to the railroads, second, the interference with the industry arising from the disturbed condition of Mexico, due to the revolution.

The guayule shrub, as many of your readers know, is a desert plant of extremely slow growth under natural conditions. The arid country which is its habitat is seldom visited by rains, and not only does this affect the growth of the plant, but surrounds the cutting of it with great difficulties, as those engaged in the extraction of it have to carry with them water for the men engaged in the work, and also for the animals necessary to freight the cut shrub to railroad stations. For that reason, much of the shrub growing long distances from the railroad remains uncut, and will be cut only when a sufficient high price for guayule rubber will justify the large expense necessary to procure the raw material. An advance to eighty cents per pound would bring some of this shrub to the factories.

Of great interest is the question of cultivating the shrub. Up to this time, no results have been obtained showing that this can be done at a profit; we know we can cultivate guayule, but at too high a cost for it to become an industry.

The next possible source of a supply of shrub is from the natural re-growth. On this point, we have had great encouragement, as experiments made from territory cut over some years ago show that there will be a "second cut" of some size, and if the country is visited with rains similar to the past year, we may count on a steady though slow growth of this "second cut." This can never reach proportions large enough to warrant us in expecting an output of anywhere near the yield of 1910, but it will make it possible for some of the factories to maintain a constant if diminished output. From the present outlook and from the experiences gained in the past, the rubber trade may count on the yield of about four thousand five hundred tons of guayule in 1912, and about three thousand five hundred tons in 1913. From that point on, there should be an annual production, indefinitely, of somewhere over two thousand tons. These figures are based on the supposition that the price of guayule will not go below forty-five cents per pound nor above seventy-five cents. If the price goes below forty-five cents, there will be less guayule rubber produced than the above figures, and if it goes above seventy-five cents, there will be an increase over these figures, temporarily, with a consequent acceleration of the consumption of the available shrub supply, and also with a consequent destruction of the future source of supply. High prices for rubber mean high prices for shrub, and a resultant "robbing

PHOTOGRAPH SHOWING THE GROWTH OF GUAYULE, WITHOUT SEEDING OR CULTIVATION, ON CUT-OVER GROUND IN THE FIRST, SECOND AND THIRD YEARS.



GROWTH OF GUAYULE ON GROUND CUT-OVER IN 1908.

GROWTH OF GUAYULE ON GROUND CUT-OVER IN 1909.

GROWTH OF GUAYULE ON GROUND CUT-OVER IN 1910.

of the cradle," or destruction of young and growing shrub, as anything that appears like guayule will be cut and shipped to the factories by shrub owners greedy for money.

WALTER E. PARKER,
General Manager, The Mexican Crude Rubber Co.

A GUAYULE RESUMÉ.

[In connection with the subject of guayule it seems apropos to reproduce the major part of a paper communicated to the Canadian Section of the Society of Chemical Industry, by Harold von der Linde, vice-president of the Continental Rubber Co. of New York. This is the best non-technical resumé of the whole subject of guayule which has yet appeared.]

RECENTLY a new source of revenue has been found in Northern Mexico in the shape of the guayule plant. This plant belongs to the order of Compositae and is a small shrub, weighing about two pounds and standing about two feet high when full grown. It has a dwarfed and gnarled appearance which is very characteristic, and has a sparse olive-green, lanceolate leaf. It bears a small yellow composite flower of an agreeable odor. The guayule shrub contains an extraordinary small amount of moisture, and indeed might be mistaken for a piece of dead wood during a large portion of the year were it not for the fact that on cutting into it the bark shows a greenish and somewhat moist section. The wood of this shrub is very hard and dense, and has a high specific gravity. The shrub grows on the Northern part of the Central Mexico Plateau in enormous quantities. This district is nearly rainless and is very sparsely populated by a partly Indian, partly Spanish, very poor race. The region is practically grassless and contains no large trees, being a typical desert country. The alkali dirt which is found over most of the plateau is in reality a very rich soil needing only sufficient water to make of the region one of the most fertile in the world.

Geologically, this region, which has been described with some minuteness by Humboldt, consists of rings of denuded mountains with flat plains at their feet. These flat plains of dry dirt have the appearance of dried-up lakes and this impression is heightened by the fact that the valleys communicate with one another through gaps or canyons in the mountains, which appear to have been the beds of former rivers. On what might appear to have been the beaches of the ancient lakes—that is to say, on a strip of land running around each ring of mountains somewhat above their bases, the guayule abounds. As a rule the soil selected by the guayule shrub appears to be most unpromising, as the so-called beaches are usually covered with flinty pebbles, many of which have not proceeded very far in the process which usually gives to pebbles a somewhat regular oviform shape. There is a considerable variety of plants growing in the direct neighborhood of these so-called old beaches. In the month of August, 1909, in the course of an hour I picked thirteen varieties of flowers within a very short distance of such a region. The soil under the pebbles in the guayule districts is usually gravelly and less tightly packed than the soil of the plains beneath, which is really largely a dried-out heavy clay. The sub-soil of those beaches on which guayule flourishes is said to be universally composed of white magnesian marl called "Caliche."

The droughts of this plateau region are sometimes very prolonged, and in the guayule lands (which range from about 4,000 to 8,000 feet above the sea) it is not uncommon to have a whole year practically without rain. On one hacienda in the heart of the rubber district, there was recently a drought, practically complete, of over two years and yet the desert plants managed to cling to life. That this should be possible is accounted for by the fact that each one of the plants has some kind of protective apparatus which either enables it to lie dormant without evaporation, or to store up water in a large quantity, or to get more than its ordinary share of water. In this way the Maguey, or American Aloe, the Nopal or Prickly Pear, the Yucca or Palma, and many others, store up the water to an enormous extent in the occasional wet seasons; and as all of these have glazed leaves from which evaporation is extremely slow, they are able to resist prolonged drought. The mesquite bush and some other plants show little but their branches above the ground, the greater part of their trunks being buried, and their roots extending far down into the earth seeking for water. In Northwestern Mexico it is stated that mesquite rootlets can be seen in copper mine workings at a distance of from 120 to 130 feet below the surface. The fact that the trunks of this tree are so deeply buried and that so many of the rare springs of northern Mexico are situated on the precipitous sides of the denuded mountains, gives rise to the paradoxical saying that in this country one has to climb for water and dig for wood.

A third class of plants depends for its preservation on the fact that it possesses a waterproof cover—a sort of mackintosh coat—which almost entirely prevents evaporation during the dry seasons. Amongst these are the Gobernadora or greasewood, which secretes an enormous proportion of a very curious and complex resin; the Candelilla, which is completely covered with a coating of very hard, impervious wax; and the guayule, which possesses a very thick bark, in the cells of which solid rubber is secreted, forming a more or less complete coating for the plant. In this last case the mackintosh coat is practically the only defence that the plant possesses, as the roots are not long and do not sink deeply. As the guayule shrub does not take up a very large quantity of water even in the wet season it is necessary for its cells to become dormant and practically lifeless during the rest of the year.

Most of our sources of rubber, of which there are probably at least two hundred commercial kinds, consist in the milky juices of a large number of tropical plants. The guayule plant is exceptional in that it yields no milky latex—the rubber existing in the solid state, partially filling the cells of the bark—the cells themselves being lined by a resin which consists probably partly of incipient rubber and partly of degraded oxidized rubber. The plant also contains a considerable amount of two or more essential oils, which give it a very characteristic and not disagreeable odor. Rubber is contained in other parts of the plant besides the bark, but in a smaller quantity, although it is abundant in the roots. It was, of course, not possible to gather the rubber from this kind of plant in the usual way—by tapping, that is—and special methods had to be devised in order to extract it. These methods in the past were both chemical and mechanical, but the mechanical method has now superseded the chemical, which latter is but little used.

The guayule plant probably lives to the age of forty or fifty years in favorable cases. It is said to be mature in from five to ten years; but very little is certainly known on this subject, and very much of its growth depends upon the rainfall, so that in some districts it is probable that it matures very much earlier than in others. The amount of rubber borne by the plant is generally taken as being about ten per cent. There is a very great variation, however, in the yield of plants gathered in different districts. Some of the worst grades of guayule shrub will not yield as much as 10 per cent. of rubber, while some of the better grades will yield more. Guayule shrub appears to have the power of hybridizing with other plants. The hybrids, if such they be, have the power of secreting rubber, but it is in very small quantity and usually of poor quality.

Reproduction occurs in this plant by budding from rootlets and by seed. Of these two methods the seed seems to be the usual vehicle through which new plants appear. Each plant bears an enormous number of seeds, but a large proportion is found to be infertile.

The history of the guayule industry is very brief. The plant was used for many years in the back country of northern Mexico as

a fuel for smelting silver ores, and it is said that the Indians for centuries have made rubber balls by chewing the bark of the plant. In 1886 an English engineer reported to a syndicate of English capitalists that on a ranch which he was examining for mining prospects, that there was an enormous quantity of a plant which yielded about ten per cent. of rubber. He recommended the investigation of this matter as he believed it possible that commercial rubber could be extracted in quantity. No action was taken on his recommendation, and the matter lapsed until attention was attracted to it again a few years ago through the rising price of commercial brands of rubber. Attempts were made to extract the rubber from the plant by means of solvents. Other attempts were made to destroy the woody and barky matters by chemical means and leave the rubber untouched. Many patents have been taken out for all sorts of processes, but the mechanical method has practically superseded them all.

The plant is pulled from the soil and laden on the backs of burros. It is then carried to a central station, where it is baled by ordinary hay balers. These bales are placed upon large wagons, which are drawn across the desert by huge teams of mules—often 12 or 14 to the team—to the railroad station.

At the factory the process in principle is very simple, whilst the technical details have presented many difficulties, the conquering of which has resulted in a better and better grade of rubber. The plant is crushed to a very fine state of division in the presence of water and in the crushing the small grains of rubber adhere to one another, forming minute worms. These worms are capable of floating while the major portion of the woody and barky matters sink in the water. The rubber is skimmed off and further cleaned by purely mechanical means. It is then packed or baled and is ready for market.

This process is used for the bulk of commercial guayule rubber. Special brands are also gotten out for specific purposes. These brands are usually more or less deresinated. The resin in the commercial rubber is a highly complex body, and ranges from 19 to 21 per cent. of the crude dry rubber. There seems to be little doubt but that the presence of the resin acts to some degree as a preservative in vulcanized rubber goods. The so-called resin comprises all the acetone solubles that the rubber contains. For some purposes 5 to 10, or 15 per cent., or even all the resin is extracted, although many manufacturers believe that this process does not appreciably influence the quality of the product. Guayule rubber is classed among the soft inferior rubbers. It is undoubtedly a true rubber, and is almost paradoxical in its nature from the fact that the process of vulcanization enhances its quality to an extent which brings it into direct competition with other rubbers which sell for higher prices. In other words, it seems likely that the future will see guayule rubber at a price which will be higher relatively to that of other rubber than the price which it at present obtains. In other goods, when properly vulcanized, guayule rubber does not readily deteriorate. An extended experience indicates that its life or resistance to cracking, etc., is as great as that of rubbers of a very high grade.

David Bridge & Co., Limited, whose factory is at Manchester, England, has sent to this publication a copy of "The 'Mechanical World' Pocket Diary and Year Book for 1912." This is a handsome little volume of 426 printed pages, besides pages for a daily diary covering the whole year. The printed matter gives a vast amount of useful information, including engineering notes, rules and tables with many diagrams and illustrations—a very valuable volume for the mechanical worker.

NO MOTORIST NEED BE AFRAID TO PUMP HIS TIRE to the full limit with a hand pump, as it is practically impossible for him, with this implement, to get too much air into the tire. It is pretty safe to say that an always-full tire will last twice as long as the tire that is never more than half filled.

THE MADERO GOVERNMENT AND THE UNITED STATES.

PRESIDENT MADERO, of Mexico, is a person of more than usual interest to the rubber trade because of the commanding position long occupied by his family in the export of guayule from Mexico, in which industry he made his fortune and to which he owes not a little of the influence and prestige that made him the chief executive of his country. He is also an object of great interest to the entire American business world, as his administration appears to be planned on broad and liberal lines, with the promise that commercial relations between this country and Mexico will be greatly developed under the new régime.

One illustration of this desire on the part of President Madero to establish closer relations with the United States is the fact that he has sent his friends, Señor Heriberto Barron, to this country as the commercial agent of Mexico to inspire confidence

A BAND OF "MADERISTAS."

among American investors in Mexican enterprises. Señor Barron was *persona non grata* to President Diaz, but he stands very close to the present administration. He has opened offices at No. 32 Broadway, New York, where he hopes to establish a permanent Mexican Bureau of Information. He is quoted as saying:

"I want the American investors to know that they can now safely come into Mexico. We are particularly friendly to the United States because investors in this country already have nearly $1,000,000,000 invested in Mexico and because 75 per cent. of our imports and exports come from and go to the United States. Trade has increased materially since Madero has been at the head of the government.

"It is a part of President Madero's plans to irrigate many sections of the country, to build new railroads, new harbors, and to encourage the formation of new steamship companies."

THE UTAH-MEXICAN RUBBER CO.

A recent number of the Salt Lake City "Herald" contains an interesting account of the progress made by the Utah-Mexican Rubber Co. It states that beginning eight years ago with 6,000 acres of dense jungle in the state of Tabasco, Mexico, it has increased its territory until it now has 80,000 acres, with more acres actually cleared and planted than were numbered in its original tract, 5,000 acres having been planted to rubber and another thousand acres to bananas. The work of the company was very much retarded by the turmoil of the revolution, which greatly decreased its working force, but even so, the company has begun tapping the older trees. It is stated that an English syndicate, which has already secured two Mexican plantations, made an offer of one and a half million dollars in gold for this one, which offer was declined.

The president of the company is Joseph F. Smith, while its directors include James T. Hammond, W. S. McCormick, John S. Bransford and W. W. Miller, all prominent in the business life of Salt Lake City.

A Morning With the Rubber Gatherers in Panama.

THE wet weather had moderated, the moon was changing in clear skies, the wind swung around to the north-east, and the rubber men in their distant mountain homes read in the skies that the tapping season was now at hand. The "man on the job" at headquarters had anxiously watched the sky for weeks, knowing that continued wet weather would prevent the natives from coming to work, meaning the loss of a month's production of rubber, and incidentally a call down from the home office.

Fortune, or rather the weather, was kind to him, and the morning dawns on clear skies and settled weather. He has been astir for two hours working by candle light, with every man, woman and child in the camp assisting in making ready the food supplies and camp equipment. The season is to be opened at Camp Pearson, a mountain camp fifteen miles from headquarters, and everything from a box of matches to the heavy rubber press, must be packed on the backs of men for this destination.

The first "grito" (or call from the morning *caucheros*) is heard in the distant hills and soon they arrive in groups of ten or twenty men, women, children and a score of emaciated dogs. By noon time the camp is alive with natives; the men sharpening their *machetes* and prepairing their pack-loads, the women cooking a hurried meal, the boys shouting and the dogs quarreling.

The *Mandador*, José, selects twelve of the most active natives, and slinging their packs, with *machetes* in hand, they start off in advance to open the trail and prepare the distant camp for occupancy. Later on, more men and boys, swing their alloted burdens to their backs and follow down the trail. The women fall in behind, carrying the blankets and personal belongings of

A GROUP OF "CAUCHEROS."

the men. The man in charge locks up the house and with a last look in the empty *ranchos* of the solitary camp, he starts down the path.

Over steep hills and rocky *quebradas* goes the trail where it is hard climbing in places—then it leads through the tall trees, forests of quiet shade and growing palms, where filtered sunlight marks the winding path. The curious monkeys look down from the branches and bark a protest, while the parrots feeding noisily in the trees complete the tropical picture.

At the ford of the river the natives have halted. Some have crossed, while others are helping the women. Strong poles are

BUILDING HEADQUARTERS AT CAMP PEARSON.

used to assist in breasting the current and there is much shouting and laughter when an unfortunate native stumbles and falls in the water. Nothing, however, serious happens with the exception of a wet sack of rice or a soaked *motete* of clothing, and the march is resumed.

When the camp is finally reached the afternoon is well along. José and his men have repaired the thatch of the *ranchos* and made them habitable. The bush is cleared away, and bunks of poles have been made along the sides of the huts, ready for the approaching night. The cooks have been busy, and the pots of rice are steaming, with the black coffee bubbling and sending forth odors which can only be appreciated by a hungry bushman. The call, "*á comer*" (meal time) brings willing hands to lift the pots of hot rice and coffee from the fire and to place them on the ground, where they are surrounded by the squatting natives, who help themselves often and plentifully by means of large spoons made from the calabash.

The sun sinks lower, finally dropping out of sight, and the night falls quickly. The toads and night insects tune up, the embers of the fire crackle in the night air, an owl hoots dismally—and the camp is asleep.

Long before daylight, the "man on the job" shakes the cooks out of their blankets, issues the rations, and stirs the drowsy camp to activity. It is still dark when the morning meal is disposed of, as the tappers should be at work by daylight. José divides the *caucheros* into groups of fifteen and appoints a *mandador* to take charge of each group. Each man carries a latex-can, a small calabash and the inevitable *machete*. The *mandadors* are given certain districts to work in, and with pipes alight

they start down the trail and disappear in the bush, their strange call; "ah-oo-ah, ah-oo-ah," echoing in the distance until they are gone.

The man in charge appoints a *leñero* to cut fire wood. The women fetch water from the river and wash the pans, tubs and barrels. Every thing is made clean and ready for the preparation of the rubber milk. The little boys are sent to the *bajos* and return laden with hanks of *"batatilla"* (Ipomea)—a green vine used to prepare the rubber coagulant—which they pound into shreds on the rocks and soak intubs of water, wringing out the fibre, until a strong solution is obtained.

At two o'clock the *caucheros* begin to return to camp, and by four the last can of milk has been weighed and emptied into the mixing barrels. Clean water is added and the milk is passed through strainers which remove the dirt, bark, etc. The clean milk is placed in pans, and the coagulating solution added and stirred. This completes the preliminaries of preparing the rubber. Work for the day is over, and the sun sinks below the tree tops, casting long shadows over the clearing. The men and boys are bathing in the river; their shouts and laughter echoing back from the surrounding hills. The women are washing the pots, pans and barrels, and the sound of contentment and geniality is everywhere heard. Soon the camp quiets down, the stars shine through the dusky trees, and the dim light from the new moon makes ghostly shadows in the silent forest. The man in charge sits in his hammock smoking, and mentally figures on the possible production. Wet weather will bring a low average and failure. The uncertain natives may get discouraged and quit; leaving the work of the camp unfinished—his pipe goes out and he dreams of rubber in hundred ton lots and a selling price of $5 a pound.

Next day proves to be ideal for rubber gathering, and an early start is made. The camp workers are soon busy with the routine tasks. The rubber has coagulated perfectly. Each pan contains a soft white mass of rubber, floating in a black liquor. It is carefully lifted out and passed through the press, coming out in the form of a large white pancake. It is then stamped with the company's brand and placed on the shelves to dry, where it gradually changes to a dark amber color. After a few days in the smoke-house the rubber will be ready for the market.

A couple of *caucheros* come quietly into camp and ask for a gun. They have met with deer tracks. The prospect of fresh meat is ample cause for suspension of the order against hunting during business hours, and the hunters depart hurriedly with the gun. An hour passes and a distant shot is heard—and then another. In the uncertainties of mountain hunting this means nothing definite—but when two hours later, the hunters return staggering under the weight of a fat buck, their prowess is proven. The carcass is slung from a convenient limb and the hide quickly removed. The meat is cut up into strips and the bones carefully saved. A portion is salted down and hung in the sun to dry, but the best meat is usually smoked. Rude drying racks are made, and the strings of meat are festooned over the fire, which is replenished with green smoke-producing wood. A piece of smoked deer meat roasted in the open fire or fried in a very hot skillet, is a delight at the moment, and a memory of bush life never to be forgotten.

CAMP PALO SECO.

DRESSING A WILD PIG AT CAMP PEARSON.

So the days go on. The piles of rubber increase and the grub sacks diminish. The *caucheros* have scoured the woods for miles around in search of untapped trees—the camp is finished. Early next morning breaking up camp is quickly accomplished. Heavy packs of rubber are slung on the backs of the men, the equipment collected, and a portion of the burden allotted to each individual. The "man on the job" slings his hammock and blanket on his shoulders, and follows his rubber gatherers down the home trail. Camp Pearson remains silent and deserted.

Camp Pearson was named in honor of the editor of THE INDIA RUBBER WORLD, who several years ago made a visit to Panama and spent many pleasant and profitable weeks studying its rubber problems, and exposing the territory where this camp is located.

WHERE BARYTES COMES FROM.

Barytes is a mineral used quite freely in the manufacture of rubber goods. Over 50 per cent., or to be quite exact 54 per cent., of all the barytes mined in the United States comes from the State of Missouri.

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THE RUBBER TRADE IN BOSTON.

(By a Resident Correspondent.)

THE year just closed has been less successful than some previous ones, but, on the whole, fairly satisfactory. The tire business has shown a substantial increase, and individual houses report a larger sale, even with the additional competition of new agencies. The sales of belting, hose, packing and factory supplies has totaled up well, even though there seems to be a growing tendency, on the part of consumers, to buy in smaller quantities, and run closer to day-by-day requirements. The weather has been unusually favorable for a good demand for rubber and other waterproof garments, and every manufacturer of these goods has run his factory to full capacity, and many could have sold much more had they been able to deliver the goods. The year was an unsatisfactory one for rubber footwear, as might be expected, with real winter holding off so long, and the entire absence of snow during the early part of the season. It is generally conceded that a snow storm in November is worth two in January and three in February, to the rubber shoe trade, and as there was much less advance buying last spring, because of the absence of inducements, the orders came late, and some of them did not come at all. But with this exception the trade is doing but little grumbling and is looking for a better business all around in 1912.

* * *

The Wilkie Rubber Company, of Lynn and Saugus, has sent out a circular letter announcing the retirement of Robert J. Wilkie from the treasurership of that company. His successor is Philip K. Parker, formerly of the Security Trust Company, of Lynn. Harvey F. Mitzel, formerly of Barberton and Akron, has been made factory manager and superintendent.

* * *

A new arch support for the correction of foot troubles will be placed on the market by the Lynn Rubber Manufacturing Company. Under a process patented by Dr. C. D. S. Lovell, of Lynn, sponge rubber is molded and vulcanized on a last and then covered with leather. The company will also make rubber soles and heels for the shoe manufacturing trade.

* * *

Mention was made last month in this department of the souvenir framed in the office of Francis H. Appleton, in this city, a memento of his visit to England as representative of the Ancient and Honorable Artillery Company. This company plans to "go over to England and make a short visit to France, to show off their tar-bucket chapeaux, blue tail-coats and pearl-colored pants." An insular and continental trip is planned, and the above briefly describes the new uniform which is proposed, and will probably be adopted. It is interesting to note that a regular part of this uniform will be a rubber cape sufficiently large to protect the new clothing and accountrements from the showers and fogs which may be encountered on the various marches to be taken during the journey abroad.

* * *

For more than half a century the ultimate consumer of rubber goods of almost any description, from a submarine diver's suit to a fine-tooth comb has been able to supply his wants in this line on School street. At one time there were three competing rubber stores, all run by H's, Hall, Hodgman and Hayes. Two of these disappeared from this locality years ago, but the "Goodyear Rubber House" removed from the old church building only last month, driven out by the march of progress and the increased cost of doing business under the shadow of City Hall and the uptown trend of retail trade. The new location is at 46 Boylston street, a few doors above the C. J. Bailey establishment. Robert Josselyn, the proprietor, has been connected with the rubber trade all of his business life. At the age of 17 he went to work in the Hall rubber store. Then he ran a branch store for Mr. Hall in Washington until after the war, when he again came to the Boston store. He was with C. M. Clapp nine years, and after a few years in Detroit, came back and formed the partnership of Josselyn & Conant, and bought out the Hall store in 1879, since which time he has run the business uninterruptedly, buying out his partner twenty-four years ago. Mr. Josselyn's billheads describe him as a jobber and retailer of rubber goods, although his business is principally retail, and his new location is in a section where retail trade is growing more and more every year. His billheads still bear the imprint of the old wood-cut, used a half-century ago by Mr. Hall, showing the contrast between the man who wears a rubber coat and the one who doesn't, but it may be needless to say that if the picture is old-fashioned, the new store is up to date in all essential particulars.

* * *

The annual meeting of the Boston Belting Company was held December 5 and 6, at which the officers and directors were re-elected. A list of the officers, together with the company's balance sheet on September 30 last, will be found on another page under "News of the American Rubber Trade."

* * *

This is the bowling season, and all the alleys are being worked to full capacity. The Rubber Tire Bowling League, comprising eight teams of five men each, together with several substitutes, has been formed, and is already busy at Trinity Court bowling alleys. The tire companies forming the league are the Goodrich, Diamond, Goodyear, Fisk, Firestone, Kelley, Springfield, United States, Swinehart and Republic, the two last combining forces and entering one team. Great rivalry is manifested and some excellent scores are already recorded.

The tournament is to last fourteen weeks, and a prize of the value of $80 is to go to the winning team, besides $20 for individual high average, $20 for individual three string, and $20 for individual single string.

* * *

The Boston Woven Hose & Rubber Company has acquired the old Hayden mill in Plymouth, Massachusetts, which has an excellent water power. The company will make such changes as may be necessary to install an electric generating plant, to furnish power which will be conveyed by cables to the company's factory at Russell's Mills, a village not far from the newly acquired property.

* * *

An interesting feature of the recital of the Malden Musical Club on the evening of December 20, was the presentation of an original play, the text of which was read by the authoress, while the incidental music was rendered by the orchestra, and the songs sung by the club members and chorus. The whole work, dramatic and musical, is by Mrs. Harry E. Converse, wife of Col. H. E. Converse, of the United States Rubber Co., and daughter of the late John H. Parker, whose leather-soled rubber boots made him well known in the trade.

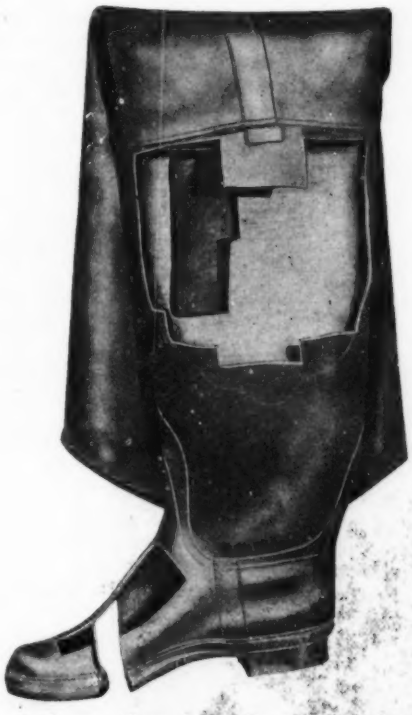
* * *

A gentleman who accompanied Colonel S. P. Colt on his trip to Europe last year, says that Russia has America "skun a mile" in the size and importance of its rubber factories. One which they visited and inspected in St. Petersburg, has a force of employes numbering between 8,000 and 9,000. The daily output of boots and shoes is an average of 75,000 pairs. There is a similar large output of mechanical goods and druggists' specialties, and again an equal value in the production of clothing. The concern did a business of $28,000,000 in 1909, and on this amount they were taxed 28 per cent. by the government, but in spite of this handicap, the year was a very profitable one, owing to the heavy protective tariff, on imported manufactures of rubber. "We saw much of the factory, though there were some things we didn't see, which we would like to have seen, yet we consid-

ered ourselves very fortunate to have seen any of it, and we must acknowledge our thanks for the great courtesy shown us by the Russians."

* * *

A hip rubber boot which was sent as a sample, with a bid for a large contract, was recently returned to the manufacturers in this city in the condition shown by the photograph. A large piece had been removed from the vamp; nearly a whole cross-section an inch wide had been cut out at the ball, taking pieces of the tap-sole, sole, insole, lining and upper, and from the leg two large sections were cut, one on each side. This shows the great thoroughness with which some large consumers examine samples before placing orders. It is believed that besides the



A SAMPLE BOOT AFTER BEING EXAMINED.

thorough examination into the construction of the boot, as shown by the dissection, each piece was submitted to chemical analysis to determine just how much pure rubber entered into the composition. And it might be added that the result was a good, large order.

* * *

The Enterprise Rubber Company has a fine pair of show windows in its store on Federal street, where thousands pass every hour of the business day, and these windows are always most attractively trimmed. During the football season a most appropriate trim represented a football field, the players being red rubber toys, each decorated with ribbon of the college colors, Another time one window contained a sample of every style of rubber footwear made by the Candee Company, numbering about 200 varieties, each one labelled and described. A display of tires and automobile accessories formed an attraction at one time, and along about the holidays the windows were filled with toys and useful articles suitable for gifts. Manager Procter is having a most successful trade, both wholesale and retail, though the early part of the season was not favorable for some of his lines.

RUBBER TRADE IN RHODE ISLAND.

(By a Resident Correspondent.)

THE Grand Trunk Railroad Co., the Canadian corporation which has been waging a strenuous fight against the New York, New Haven and Hartford Railroad Co. in an endeavor to extend its lines into Providence, has purchased the land recently acquired by the Walpole Rubber Co. for a site in this city. It is to use it for a large freight station.

The Walpole Rubber Co. secured this land from the Providence Land and Wharf Co. several months ago for the purpose of building a plant here, as its plant at Walpole is being gradually outgrown and the concern wants to get into the midst of the shipping activities of Rhode Island's capital. The tract is in the industrial heart of the city and contains about 83,000 square feet.

It has been learned from Mr. Baldwin, of the Walpole Co., that his concern has not given up the idea of coming here, but, on the contrary, is endeavoring to secure another desirable location. Its whereabouts cannot be learned, however, until negotiations have progressed further.

* * *

After experiencing a dull period of several months, during which time the plant was run on a schedule of five nine-hour days a week, the National India Rubber Co. resumed full time on November 26, six days a week of 10 hours each. Simultaneously with the resumption of full-time the working force was increased, and now numbers between 1,600 and 1,700 persons.

The increase in business came most heavily in the gum-shoe and arctic departments, where 3,000 pairs per day were averaged at first. Since that time the daily output of gum-shoes has been increased from 150 to 250 cases, and the arctic output has been increased from 100 to 200 cases. Officials of the concern expect the brisk business to continue. There is also a heavy demand for tennis shoes.

* * *

George A. Sherman, a former resident of Bristol, Rhode Island, and foreman at the American Rubber Co.'s plant, Cambridge, Massachusetts, died at his home, Milford, Massachusetts, November 23. He had been ill for a long time. He was a member of the Knights Templars, and leaves a widow and one son, George S. Sherman, Jr., M.D., of Cambridge.

* * *

The name of the Banigan Building, one of the largest office buildings in Providence, which until recently was controlled by the estate of Joseph Banigan, a former prominent rubber man here, has been changed to the Grosvenor Building.

* * *

The American Wringer Co., of Woonsocket, will be benefited by a proposed freight yard of the Grand Trunk Railroad Co. in that city. The railroad corporation's intention to compete with the New Haven railroad has caused it to file a location for yards and freight stations in the center of the manufacturing district of Woonsocket within a few hundred feet of the American Wringer Co.'s plant.

* * *

John J. Kelly, of Warren, Rhode Island, who has been a bookkeeper at the Bristol office of the National India Rubber Co. for several years past, has recently been appointed paymaster of the corporation.

* * *

The good condition of an automatic sprinkler system and the discipline of a fire-fighting brigade made up of employes saved the Bourn Rubber Co. from a disastrous fire on December 4. Its effects would have been particularly acute at this time, as the concern is rushing at full capacity turning out rubber overshoes. The fire began in the middle of the afternoon when a "blow down" pipe in one of the boilers exploded and scattered the

contents of the firebox over the floor. The engineer had barely enough time to get out of the room before it was ablaze. The flames were extinguished before the arrival of the city apparatus.

* * *

Col. Samuel P. Colt, president of the United States Rubber Co., president of the National India Rubber Co., of Bristol, Rhode Island, and chairman of the board of directors of the Industrial Trust Co., of this city, will be the storm center at the annual meeting of the latter corporation here on January 16.

Colonel Colt is the founder and principal stockholder of the Industrial Trust Co., the largest banking institution in Rhode Island, its assets, according to its report December 4, being $51,159,664.52. While ill during January, 1908, Mr. Colt was induced to resign as president of the company, with the understanding that his position as chairman of the board of directors would be fully recognized upon his recovery. Since then, he says, his position has not been recognized in the manner in which it is in other corporations and that harmony does not prevail between himself and other officers.

Under date of November 20, Col. Colt sent out a circular request for proxies to be used at the annual meeting. The request was on paper headed "Industrial Trust Company," and in the request Col. Colt was named as attorney. Two days later stockholders received a printed circular from the executive committee advising them to wait for the usual notice and the regular form of proxy, and stating that Col. Colt's request was made without authority. This letter was signed by Cyrus P. Brown, Richard A. Robertson, William H. Perry, H. Martin Brown, C. C. Harrington, Otis Everett and Arthur L. Kelley. The latter is president of the Mechanical Fabric Co.

Col. Colt replied a few days later with a letter in which he explained that the "Industrial Trust Company" had been his post office address for many years and called attention to the fact that the letters were signed by him personally, with no reference to his official position. He said that he would be pleased to return proxies to any who had been mislead.

In his home town, Bristol, Col. Colt has already secured 1,912 shares out of a total of 1,991, and has many proxies from other places. He says that he wishes to restore harmony. As Col. Colt was the organizer of the company 24 years ago, and has been largely instrumental in bringing it to its present high standing in the banking world, it is believed that his influence will be potent at the coming annual meeting, if he does not actually control it.

In his letter to the stockholders he had this to say: "I firmly believe that it is in the interest of all stockholders to send me their proxies, that there may be a restoration of harmony in the management of the company, which has been, and is, so dear to me, that there may be no abatement of that energy which, with the co-operation of many loyal men, brought the company from the foot of the ladder in 1887 to be one of the leading banking institutions in New England, and that I may again find pleasure in influencing whatever business I can in the company's favor."

* * *

The publication of Bulletin No. 36 of the Department of Commerce and Labor in a Providence newspaper in which the director of the Bureau of the Census gave the total capitalization of Rhode Island's rubber manufactories as $11,794,533, the total number of persons employed as 991 and the amount of wages paid as $416,642, excited much comment among rubber men here.

The manufacturers immediately replied by pointing to the Rhode Island State Census of 1905, in which the total number of employes in the State in the boot and shoe branch of the trade was given as 2,590 and in the rubber works as 1,528, the total in the business being 4,118 at that time. They also named seven of the largest establishments, the Woonsocket Rubber Co., Woonsocket; National India Rubber Co. and Consumers' Rubber Co., Bristol, and the Davol Rubber Co., Mechanical Fabric Co. and Bourn Rubber Co., all of Providence, and the Revere Rubber Co., the Providence plant of the United States Tire Co.

Any one of these concerns, it was stated by a prominent official, would equal the Government figures for the total, and this man also pointed out the presence of other smaller concerns in the state.

The director heard of the criticism of the rubber manufacturers of the state and sent an explanation to a Providence newspaper in which he stated that table No. 16 of Bulletin No. 36 did not include the manufacture of rubber boots and shoes. He said that these were under a separate classification. They were, but they were merged with other industries, so that it was impossible to get any information concerning them. This, he explained, was because "the law controlling the work of the Bureau of the Census provides that no publication shall be made whereby the operations of the individual establishments can be identified, and, therefore, in presenting the statistics for Rhode Island the data for the manufacture of rubber boots and shoes were included with all other industries."

THE RUBBER TRADE IN CHICAGO.

(By a Resident Correspondent.)

BESIDES being one of the most successful business women of the West, Mrs. E. V. Laughton, of Racine, Wisconsin, treasurer of the Chicago Rubber Clothing Company, was one of the pioneers of the rubber industry in the Middle West. For more than thirty years she has been the moving spirit in the company, and it was largely due to her energy and financial ability that the business grew from a small beginning into the flourishing concern it now is.

MRS. E. V. LAUGHTON.

In 1879 George H. Laughton, her husband, formed Laughton & Co., the first rubber manufacturing concern in Chicago. Mrs. Laughton was the "& Co.," and even then was the mainstay of the financial end of the business. In 1882 the concern, which had hitherto purchased its gossamer cloth from the East, was incorporated as the Chicago Rubber Clothing Company, and the first factory in the West for the manufacture of the old, sun-cured gossamer cloth was built at Grand Crossing, a suburb to the south of Chicago.

The establishment was moved in 1887 to Racine, where the main factory is now located. There were several reasons for the move. First, the factory at that time employed about 200 girls and help was plentiful in the northern town. Second, the change offered freedom from labor troubles. Another reason was the fact that Racine was then offering inducements to growing concerns.

At the time of her husband's death in the summer of 1893, Mrs. Laughton was secretary of the company. Immediately following his death she was elected general manager of the com-

pany, and served in that capacity for nearly 18 years. Because of increasing duties and her many activities in church and charitable work, she resigned as general manager and was succeeded by George G. Bryant, January 1, 1910.

Every employe of the company swears by Mrs. Laughton, and everywhere that her salesmen go one hears unbounded praise for the energetic, resourceful woman who has been the "backbone" of the business since her husband's death. H. J. Halaburt, present manager of the Chicago office, at 208 North Fifth avenue, who has been with the company 27 years, is one of Mrs. Laughton's staunchest friends. For twenty-one years he was on the road, and two years ago was placed in charge of the Chicago office.

* * *

L. A. Hawley, after a two years' absence, has returned to his old position as manager for the Motz Tire and Rubber Co., 2023 Michigan avenue. Mr. Hawley was the first manager of the Chicago district for the Motz people, but left two years ago to go with the Consolidated Rubber Tire Co. in the local district. Since Mr. Hawley's first connection with the company, the concern has moved to "automobile row."

* * *

The establishment of a new rubber concern in Chicago this month caused a change in the officers of three other concerns. E. G. Stearns resigned as Western sales agent for the United States Rubber Co., with headquarters at 246 Monroe street, to establish a business of his own. He was succeeded by Richard C. Hall, who resigned as president and treasurer of the Duck Brand Co., 508 South Franklin street. Mr. C. A. Eldridge, president and treasurer of the Banigan Rubber Co., 246 Monroe street, accepted the place left vacant by Mr. Hall. Mr. Eldridge in turn was succeeded by E. C. Yarnell.

* * *

E. G. Stearns and W. H. Burritt, owner of the Banner Rubber Company, of St. Louis, have incorporated the Stearns Rubber Company, which is to handle the products of the St. Louis factory. The new concern, which will handle tires, boots and shoes and rubber clothing, have been located in temporary quarters at 323 West Jackson Boulevard. On the first of the year, however, the company moved into spacious quarters on the ground floor on the corner of West Jackson Boulevard and South Market street. Branch offices have also been established in the Plymouth building, Minneapolis, Minnesota, and at 1508 Washington avenue, St. Louis. Mr. Stearns is president of the company, Mr. Burritt is vice-president, and W. F. Rath was elected secretary and treasurer.

* * *

A Chicago office is to be established by the O'Neil Tire and Protector Company, of Akron, Ohio, in the near future. The company, which manufactures the only patented five individual vulcanized bullet-proof ply protector, recently appointed Harry Israel and Morton B. Koblitz as general sales agents for the United States and Canada.

* * *

John H. Kelly, manager of the Chicago branch of the Republic Rubber Co., speaking recently of the improvements in inner tubes, said that the durability is due largely to the improvement in the Pará rubber compound.

"It seems but yesterday that inner tubes for automobile use were little more than overgrown bicycle tubes," he said. "Today we are making the black line red inner tube with its individual canvas case, protecting it from dust, light and injury from tools. The material is compounded with special reference to the grueling conditions of motor service, and improvement in the Pará rubber compound makes this tube much stronger, more wear resisting and largely impervious to solar and frictional heat. This is but one of the many improvements in the rubber end of the automobile business that follow on the heels of each other so quickly that there is only time for a moment's wonder."

THE RUBBER TRADE IN TRENTON.

(By a Resident Correspondent.)

LOCAL manufacturers report that business has been brisk the past few months with the outlook most promising, all the plants being operated practically full-handed. Many of the plants are working day and night shifts, and the holiday season will be marked by a cessation of not more than a day or two on account of stock taking. Some concerns are operating the tire departments steadily, day and night, while others are working full-handed on the day shifts and four nights a week.

* * *

As a rubber center Trenton is rapidly getting into the first rank, the accessibility to New York being a factor which has caused more than one concern to locate here.

* * *

The building formerly occupied by the Morrisville Vulcanite Co., Morrisville, Pennsylvania, across the river, will become a boxing arena if local amusement promoters can come to satisfactory terms with the owners of the building. The laws of Pennsylvania permit six-round boxing bouts, while the ban is on the sport in this city. Hence the necessity for securing a building in Morrisville, which is within five minutes' trolley ride.

* * *

The United and Globe Rubber Manufacturing Cos. and the Empire Rubber Co. recently furnished the city of Trenton with 10,000 feet of fire hose at $1 a foot. Each concern supplied 5,000 feet, bidding in open competition.

* * *

The Chamber of Commerce of this city is making a strong effort to bring several rubber concerns to this city from the middle west. Secretary Metzger is authority for the statement that one concern has secured option on a tract in the southeastern section of the city for a plant.

Mr. Metzger declines to divulge the name of the concern at present.

* * *

Although a particularly busy man with the affairs of the United and Globe Rubber Manufacturing Co. the vice-president of the concern, John S. Broughton, finds time to act as director of a half-dozen corporations, several banks and the Trenton School of Industrial Arts, located near the state capitol.

* * *

The local rubber companies manufacturing automobile tires have "passed up" all forms of racing and race-meet advertising, believing it is unprofitable. The Empire, Home, Whitehead, Thermoid and other concerns have taken a turn at this style of exploiting the merits of tire product but the officials of the companies agree that printers' ink in publications devoted to the industry brings better results.

* * *

Clifford B. Oakley, of the Essex Rubber Co. is one of the rubber men who believes in "being on the job" at all times. He is one of the hardest workers in the business and since he entered this firm it has made rapid strides. Every inch of space in the new addition to the plant in East Trenton is utilized. This concern is filling many orders for sporting goods, such as rubber quoits, tennis and yachting rubber shoe heels and other specialties.

* * *

The three-story 60′ x 180′ brick building, an addition to the plant of the Hamilton Rubber Manufacturing Co., is about ready for occupancy and gives the concern needed room for the mechanical rubber department. This progressive concern has been working day and night shifts and President Blodgett states that the outlook for a big season's business was never more promising.

THE RUBBER TRADE IN SAN FRANCISCO.

(By a Resident Correspondent.)

THERE is improvement in the business of the average rubber merchant of this city. There is unquestionably a healthier tone to business in all general lines, and even if the sales in any particular line of business are not showing great increase, nevertheless that business is feeling the good effects of the universal improvement in trade conditions. The lack of rain has had the effect of holding back business in rubber clothing, boots and shoes. In San Francisco and surburban cities there has been a great increase in the amount of building, railroad construction and general civic improvement, which is a certain indication that the people are getting into a more liberal frame of mind than they have been in for several years, and this certainly proves better financial conditions.

* * *

William Hechtman, formerly with the Gorham Revere Rubber Company and for a short time with the Gorham Engineering Company, is now connected with the United States Tire Company. He will have his offices in San Francisco, and at the present time is located in the Hughes Building, although as soon as the company's new quarters on Golden Gate avenue are completed he will move there.

* * *

W. A. Daggett, with the Eureka Fire Hose Manufacturing Company, is now in Los Angeles looking after the interests of his firm in that city regarding the 10,000 feet of fire hose which the city is buying.

* * *

Jas. B. Brady, of the Gorham Revere Rubber Company, reports that business with this firm is highly satisfactory. Taking in the entire coast it is his observation that conditions are a little better in the northwest and in Los Angeles than they are in San Francisco. This city, however, is improving and 1912 will see greater improvement. By 1913 he is satisfied that business will be booming, in San Francisco in particular and generally all along the coast. This firm is just now beginning to put a new tire on the market adapted specially to the needs of local autoists. It is the Revere tire, which is a great deal heavier than the average tire and of stronger fabric than the general tire on the local market. A great deal of study has been given to conditions of California roads, and it is found that they average rather rough and require a strong, rugged tire.

* *

On the 27th, 28th and 29th of last month the Gorham Revere Rubber Company held a meeting of its salesmen gathered from Los Angeles and San Francisco. Business meetings were held in the mornings, the men being royally entertained in the afternoons. The purpose of the gathering is to bring the salesmen together for the exchange of ideas and to bring them all in close touch with the company they are working for. A little later on a similar meeting will be held for the salesmen in the northwest at Seattle. Next year, with the experience gained from the two meetings held at this time, one big meeting will be held taking in all of the salesmen connected with all of the branches of this company on the Pacific Coast.

* * *

L. D. Torrey, son of L. L. Torrey, who was formerly president of the Pennsylvania Rubber Company of California, is now the manager for the Weinstock Nichols Company, of Los Angeles. Mr. Torrey's offices were formerly in San Francisco.

* * *

H. C. Norton, of the American Rubber Manufacturing Company, now makes his headquarters at the company's offices on Beale street, near Market. Construction work is now going on for a new addition to the company's factory at Emeryville, California.

The Pacific Mill, Mine & Supply Company, both at their San Francisco store, on Mission street, and at the branch in Los Angeles, report an excellent business on rubber belting.

* * *

W. F. Bowers, president of the Bowers Rubber Works, is now making a trip through the principal cities of the east. He will return on the first of January. Mr. Tripp, one of the office men with this firm, who was sick with typhoid fever, is now on the road to recovery. He had suffered a relapse after his first convalesence, which set him back several weeks.

* * *

"Up to the present time," said R. H. Pease, head of the Goodyear Rubber Company, "we have not had half the amount of rain we had at this time last year, and as last year was a very dry fall it makes slow business in the matter of boots and shoes and clothing. We all hope we may have a good storm to clean up goods and stocks in the country. Our general business, taking everything into consideration, is very fair."

* * *

The City of Seattle, Washington, has again called for hose bids. The first time all bids were rejected because the city authorities concluded that the goods they wanted could not be made at the low prices of the lowest bidder. The second time they were rejected because there were only three bidders. Now, on the 25th of last month they reopened the specifications. This unsettled condition makes it bad for the bidders, who have to put up a check, which ties up their money for several months, and makes them spend their time, energy and money three different times instead of one.

* * *

Following the visit of A. F. Osterloh, manager of the western sales division of the Goodyear Tire & Rubber Company, Assistant Sales Manager N. B. Taylor has been placed in charge of the company's branch in San Francisco, succeeding A. C. Leonard, who for over a year has been the western manager. Mr. Taylor will have general supervision of all of the firm's interests in the west, and while Mr. Osterloh was here he accompanied him on a tour of inspection of all the branches. This company is erecting a large store on Van Ness avenue. Mr. Leonard has not made any definite announcement, but it is reported that he will secure a tire agency of his own and locate with offices in San Francisco.

* * *

W. R. Gorham, manager of the Gorham Engineering Works, of Alameda, and son of W. J. Gorham, of the Gorham Revere Rubber Company, was married in Los Angeles on December 2d to Miss Hazel Hock of the southern city, a former schoolmate and a former Alameda girl. He left Los Angeles with his bride bound for Columbus, Ohio, via New Orleans. His marriage was a surprise to all of his friends.

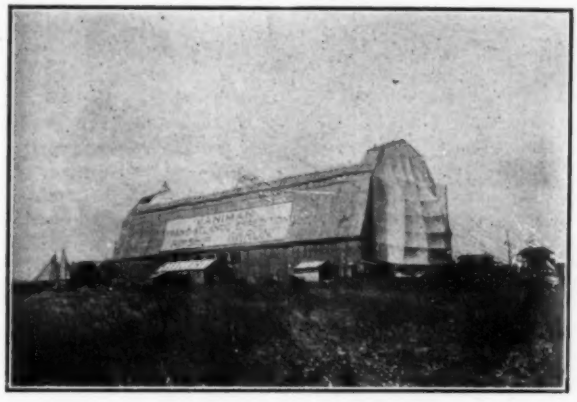
CLEANING AUTOS BY THE VACUUM SYSTEM.

IF the vacuum cleaner is serviceable and efficient in offices and homes, why should it not be made to work on the automobile, which has a great many little corners which it is difficult to sweep out in the ordinary way. As a matter of fact, an automobile vacuum cleaner has appeared, and very probably will soon be in more or less extensive use. It is fitted with rubber hose, of sufficient length to reach any part of the automobile, the appliance being operated by the exhaust gases of the machine. It is particularly useful in cleaning out all the little inaccessible corners of the upholstery, and can, in addition, be used upon the occupants of the car after they have finished a dusty ride. The suggestion might be made that if the Pullman company would add an equipment of this sort to its cars, it would be vastly preferable to the present system, by which the porter takes all the nap off of one's apparel with a whisk broom in one hand, while with the other hand he depletes the traveler's pockets.

A Description of the Balloon "Akron."

(By a Special Correspondent.)

THE original description of the balloon "Akron," which is financed by F. A. Seiberling and managed by Melvin Vaniman and constructed under the supervision of Melvin Vaniman and a corps of able aeronautic engineers of The Goodyear Tire & Rubber Company, and the construction of the balloon



HANGAR OF THE "AKRON."

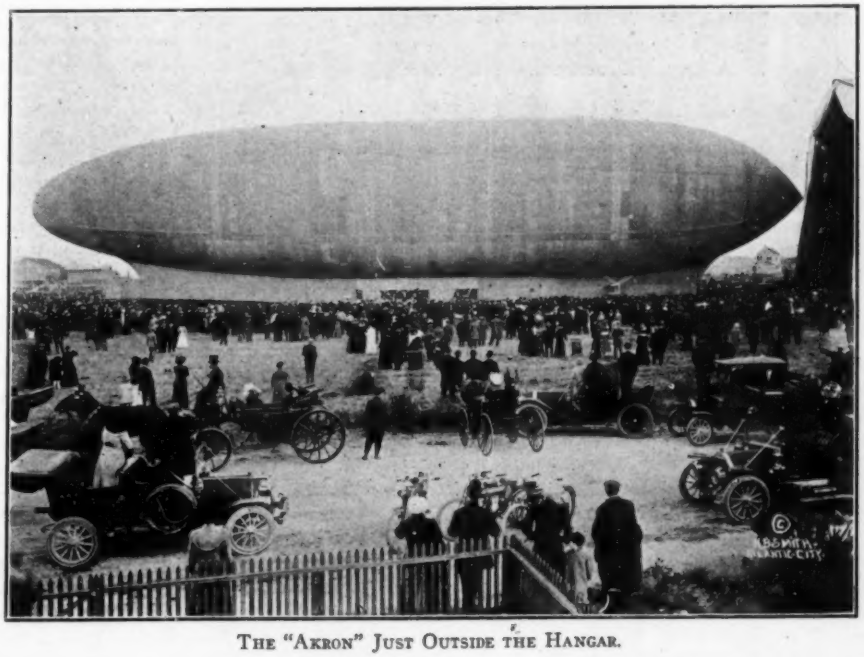
part, were taken up in the September issue of this magazine. This has now been completed, a few minor changes being made. The length has been cut down ten feet in order to accommodate it to the hangar in which it is housed at Atlantic City. The gross weight carried is approximately thirteen tons. The shape has been specially designed and special allowance has been made for stretch and strain, each of which under trial has worked out well.

The car consists of long trusses of steel tubing of bridge construction design. The lower parts of the trusses form the gasoline tank, which holds about five tons of gasoline. There are three main engines mounted transversely over the gasoline tank, each driving two wooden propellers, one on each side. The middle engine is an eight-cylinder E. N. V., and the other two are six-cylinder Sterlings; the first developing 80 horse-power at 1,500 r. p. m. and the second developing 90 to 100 horse-power at 1,000 r. p. m. Properly run, each of the propellers will make 500 r. p. m. The forward two propellers rotate in transverse vertical planes, driving ahead only. The other propellers have a different plane of rotation and can be turned about a horizontal transverse axis by means of a special invention of Mr. Vaniman's, so that they aid in elevating or depressing the ship as necessity demands. In addition to these three engines, there is a small four-cylinder engine of about 17 horse-power used for several purposes. It starts the main engines, runs the generator for the wireless apparatus and also a small dynamo for lighting the ship. It drives the blower for inflating the balloonet and can be connected with the hoisting winch for handling the equilibriating device.

The horizontal control of this balloon is secured by a rudder attached to the rear, which is controlled from the steering post at the forward end of the balloon. This rudder consists of a steel tubular framework covered with specially prepared fabric similar to that used on aeroplanes, and has three vertical plane surfaces. The vertical direction of the ship is controlled by three horizontal planes attached to the rear of the rudder and two horizontal planes on each side near the bow. These can be inclined upward and downward, both controlled jointly or individually from the navigator's position at the forward end of the gasoline tank. The altitude is controlled partly by means of planes, partly by after-orientable propellers, by the amount of ballast carried and partly by means of water forced into the balloonet. The longitudinal course of the ship is maintained by placing of the weights and also by forcing air into the high end of the balloonet, displacing hydrogen. There are two balloonets, one front and one rear, into any one of which can be forced air. It has automatic escape valves. There is one large gas valve in the bottom of the balloon and an emergency valve directly over this, controlled by cords which come down from the balloon.

The wireless apparatus consists of Marconi instruments which are claimed to have power to send signals for 500 miles.

The lifeboat carried on board during trials is the one used in the "America," but repaired and improved. It is about 27 feet long, with watertight compartments. This boat is non-capsizable and non-sinkable, these properties being of importance



THE "AKRON" JUST OUTSIDE THE HANGAR.

The ship will be provisioned for ten days to two weeks.

The balloon bag consists of five distinct compartments and is filled with hydrogen. The volume of the bag is 375,000 cubic feet.

The balloonets contain about 99,000 cubic feet. The balloonets are placed in the lower part of the inside of the main balloon and are separated from it by a diaphragm of specially constructed fabric. The contents of these balloonets are under the direct control of the man at the helm.

The car differs from the cars of almost all previous balloons by being suspended closer to the main gas bag. This is known as the non-rigid suspension type. About two-thirds down each side of the gas bag are sewed extra strips eight inches in width, which suspend from the car and in which are holes with ash poles attached. From these poles are hung strong

JACK IRWIN, THE "AKRON" WIRELESS OPERATOR.

ropes. These small eight-inch strips are practically continuous along the sides of the bag, and the ropes from these converge, working into stronger and stronger ropes, which are necessarily further apart, until they meet the steel cable, which is attached to the car, thus being approximately 25 feet from the sides of the balloon where the supporting ropes are attached.

It is claimed that the crew will consist of seven people.

The cooking utensils are of special light material and designed for use on this ship. The heat of the exhaust pipe is utilized for cooking. Sleeping apartments have been provided for in the life boat and in bunks built in the structure of the car.

It is reported that Commander George B. Evans, of the scout cruiser *Salem*, will be in charge of the two ships supplied by the navy to accompany Vaniman on his transatlantic dirigible balloon trip, and he is reported as saying: "Mr. Vaniman's plan is perfectly feasible, although it presents many difficulties." Commander Evans was not informed as to which course Mr. Vaniman intended to follow, but picked out the eighth parallel as one that might be followed, saying that the most favorable winds would be found in mid-ocean and that at the beginning and end of the course he would find decidedly adverse wind conditions. The *Salem* is equipped with fine wireless apparatus, and will be able to keep in touch with the dirigible at all times. It has powerful searchlights so that close tab can be kept on the balloon. Mr. Vaniman has added an additional motor to the equipment of the balloon. Mr. F. A. Seiberling, Mr. Vaniman's financial help, says that he wants to give Mr. Vaniman every chance to make a perfect ship, and that it is up to him to do as he chooses. He doubts the wisdom of going to sea in winter and possibly encountering a sleet storm, which might load his balloon down with ice and cause it to sink, and believes that waiting until spring would place the expedition in better shape for success. Mr. Seiberling has encouraged Mr. Vaniman to make experiments and to order alterations until everything has been got into the best possible shape. Mr. Seiberling says, "I view the sleet storms as one disquieting influence, but there is the vision of the German ship hoping to come across the equatorial trade winds. I want our ship to make the journey first, and I expect Mr. Vaniman will be ready in a few days, to be governed by circumstances as they appeal to him."

Jack Irwin, the wireless operator, who will accompany the "Akron," has had a career filled with adventure. In 1900 and 1902 Mr. Irwin served in the Boer war as soldier, and also as military telegrapher and signaller. He received decorations from both Queen Victoria and King Edward for his services. In 1906 he accompanied the British in the famous Zulu campaign, and again won decorations for his work. Returning to America, he joined the staff of the Marconi company in 1907, and became famous as the receiver of the C. Q. D. call from Jack Binns, of the ill-fated steamer "Republic." In 1910 he accompanied Mr. Vaniman in the airship "America."

TRANSACTIONS OF NATIONAL ASSOCIATION OF COTTON MANUFACTURERS.

The fact that the annual meeting of the National Association of Cotton Manufacturers, held April 12-13, 1911, marked the 57th anniversary of its establishment in its original form, adds weight to the deliberations recorded in the published proceedings. It numbers at present 1,052 members.

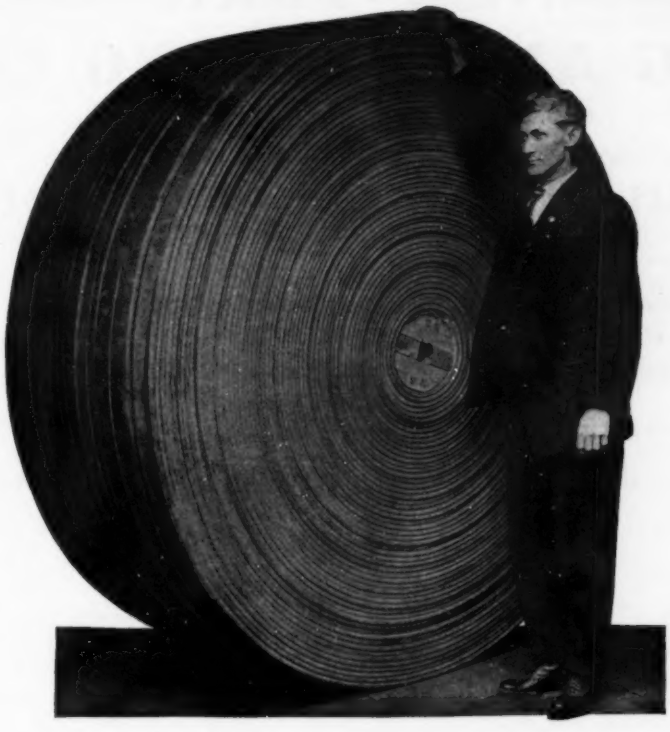
In his address, the president, Mr. Franklin W. Hobbs, of Brookline, Massachusetts, quoted various pertinent facts and estimates. Amongst other points he referred to the increase of 27.3 per cent. which had taken place between 1900 and 1910 in the number of the world's cotton spindles, which rose during that period from 105,700,000 to 134,500,000. He further estimated that the mills of the world, on full time, would need at least 20,000,000 bales, while the production of cotton for 1909 equalled 16,650,000 bales, classified as follows: United States, 10,000,000; India, 3,600,000; Egypt, 900,000; Russia, 700,000; China, 600,000; Brazil, 350,000; other countries, 500,000.

These figures would seem to indicate a possible deficit, but are based on the world's mills working full time, which is not stated to be the case. Whether the supply of cotton is sufficient for the extent to which they are working, is another question. In any case, Mr. Hobbs' expressions are of interest. He said:

"I think I am not too optimistic to believe that from the present acreage the production could be doubled if proper methods were used. . . . To improved methods of cultivation we must add a better method of picking, . . . and a general improvement in every step and process between the planting of the seed and the delivery of the cotton to the mill. We have too long drifted. The time is now ripe for concerted and determined action if we are to maintain our commanding position."

Thus conditions and interests are by no means dissimilar in the cotton and rubber industries.

The subjects treated in the papers presented, included various topics of a special character, such as:—Cotton Picking by Machinery, Laws of Regain in Cotton and Worsted, etc., and likewise several of a more general nature, such as:—Arbitration on Cancellation of Orders, Limits of Scientific Efficiency, Efficient Buying of Raw Material, Risks in Modern Industry, etc.



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EUROPE AND THE AMERICAN RUBBER EXPOSITION

THE rubber centers of Europe are taking a very lively interest in the Third International Rubber Exposition, which is to be held in New York next September, as is shown by the large number of men, prominent in the various phases of the rubber industry, who have signified their willingness to serve on the European Honorary Advisory Committee.

The president of the committee will be Sir Henry A. Blake, G. C. M. G., and the vice-president, the Right Hon Lord Elphinstone. The membership of the committee includes the following:

Association des Planteurs de Caoutchouc, Belgium.
John L. Bains, Ceylon.
Dr. A. H. Berkhout, General Secretary, International Rubber Testing Committee.
A. Bethune, J. P., ex-Chairman, Rubber Growers' Association, London.
W. D. Bosanquet, Director, Golconda Malay Rubber Co., Limited.
E. E. Buckleton, Managing Director, Northwestern Rubber Co., Limited, of U. S. A., Liverpool.
Ed. Bunge, President de L'Association des Planteurs de Caoutchouc Anvers.
Mario Calvino, Doctor en Ciencias Agricolas, Editor and Secretary of "Sociedad Agricola Mexicana of Mexico, 4a De tacuba, 34, Mexico, D. F.
The Ceylon Association in London.
F. Copeman, Director, The Rubber Estate Agency, Limited, London.
George Corderoy, Managing Director, The Malaysia Rubber Co., Limited.
Andre Cremazy, President, de la Chambre d'Agriculture de Cochin-Chine.
F. Crosbie-Roles, Editor "Times of Ceylon," Ceylon.
Octave Depuy, Vice-President, de l'Association des Planteurs de Caoutchouc de l'Indo-Chine.
H. de Vasconcellos, Consul for Brazil, Southampton.
Oliphant Devitt, Mincing Lane, London.
A. Gordon Dickson, Director, Caledonian Rubber Estates of Malaya, Limited.
Professor Wyndham Dunstan, M. A., LL. D., F. R. S., Imperial Institute, London.
R. Ehrhardt, Secretary, Association des Planteurs de Caoutchouc, Antwerp.
Ronald H. Ferguson, Editor "Ceylon Observer," Colombo.
The Honorable Everhard Fielding, Director, Kuala Lumpur Rubber Co., Limited.
William Forsythe, ex-Chairman, Planters' Association of Ceylon.
Walter Fox, late Superintendent Botanical Department, Straits Settlements.
Dr. Fritz Frank, Scientific Chemist, Berlin.
G. H. Golledge, "Gikiyanskande Estate," Ceylon.
Norman W. Grieve, Ex-President, Ceylon Association, London.
R. N. Harrison, ex-Chairman, Malay Rubber Planters' Association.
T. G. Hayes, Director, Ceylon Proprietary Tea Estates Co., Limited.
William H. Hildreth, Director, A. H. Alden & Co., London.
Professor Dr. F. Willy Hinrichsen, Berlin-Zehlendorf.
Louis Hoff, Vereinigte-Gummi-waren-Fabriken, Harburg-Wien, President, Centrakverein Deutscher Kautschuk-waren-Fabriken, Berlin.
Dr. Jacques Huber, Director, Museu Goeldi, Pará, Brazil.
A. L. Hutchinson, Mincing Lane, London.
Arthur Lampur, Director, Anglo-Malay Rubber Co., Limited.
J. E. A. Dicklauder.
George B. Leechman, Leechman & Co., Ceylon.
Lewis & Peat, Mincing Lane, London.
L. L. Loudoun-Shand, Director Hevea Rubber Trust, Limited.
J. McEwan, Chairman, Batu Caves Rubber Co.
C. C. McLeod, Director, Kasintoe Rubber Estates, Limited.
Dr. Eduard Marckwald, Scientific Chemist, Berlin.
Ch. Moens, London & Rotterdam.
Sir Daniel Morris, K. C. M. G., D. C. L., D. So., Colonial Office.
Jac. Musly, Messrs. Weise & Co., Rotterdam.
T. C. Owen, Director, Associated Tea Estates of Ceylon.
E. Pollet, Consul General for Belgium, London.
J. Pompe, Director of Amsterdam Rubber Factory.
Lieutenant-Colonel D. Prain, M. A., M. B., F. R. S., Director, Royal Gardens, Kew.
Leslie Radclyffe, A. M. E. C. E.
A. Slingervoet Ramondt, Amsterdam.
J. A. Richardson, Southern India.
T. Ritchie, J. P., Director, Bukit Mertajam Rubber Co., Limited, and many other rubber companies.
Honorable E. Rosling, Chairman, Planters' Association of Ceylon.
The Rubber Growers' Association, London.
H. Kerr Rutherford, Director, Anglo-Ceylon & General Estates Co., Limited, etc., etc.
E. G. Salmon, Editor "Rubber World."
Colonel Pedro Saurez, Consul General for Bolivia.
H. Hamel Smith, Editor "Tropical Life."
Emil Spannagel, Vereinigte Berlin-Frankfurter Gummiwaren-Fabriken.
George Springer, Editor "Gummi-Zeitung," Berlin.
A. G. N. Swart, LL. D., Director of Rubber Planting Companies, The Hague.
Jos. Torrey, M. A., Ph. D.
Sir William Treacher, K. C. M. G., ex-Governor British North Borneo.
Noel Trotter, Director, Highlands and Lowlands Pará Rubber Co., Limited.
K. H. H. van Bennekom, Hon. Consul for Belgium, The Hague.
G. van den Kerckhove, Caoutchouc Expert, Brussels.
S. P. Van Eegen, President, Chamber of Commerce, Amsterdam.
Professor P. Van Romburgh, Holland.
F. Alves Vieira, Consul General for Brazil, London.
J. G. Von Hemert, President of the Association of Surinam, Amsterdam.
Edmund Walker, Director, The Klanang Produce Co., Limited.
Professor Robert Wallace, F. R. S. E., F. L. S., Professor of Agriculture, University of Edinburgh.
Leonard Wray, I. S. C., late Director of Museums, Federated Malay States.
Herbert Wright, A. R. C. S., I. L. S., Editor "India Rubber Journal," London.

THE COMING MOTOR CAR SHOWS.

GREAT preparations have been made in Madison Square Garden, New York, for the motor car exhibitions that are to be held there during the present month. The first exhibition, which will be confined to passenger cars, will be held from January 6 to 13. The second exhibition, which will be composed of commercial vehicles, will follow immediately and continue from January 15 to 20. Over 200 artists have been at work for many days preparing a proper setting for these two exhibitions. The general color scheme of the interior of the great building will be crimson and gold, and will be exceedingly rich. The management has planned to make these shows, which will be not only the last automobile shows, but the last exhibitions of any sort to be held in the famous old Garden, memorable from every standpoint.

During the first week there will be sixty exhibitors of complete pleasure vehicles, both gasolene and electric types. In addition to these there will be 311 accessory manufacturers and dealers exhibiting and nineteen motorcycle concerns. During the second week, when commercial vehicles only will be displayed, thirty-one companies will show complete motor trucks and business wagons of all sorts and sizes, while practically the same number of accessory makers will be represented as at the previous week.

There will be a great many novelties exhibited in cars this year in the way of additional comfort for the passenger, like various heating apparatus, and one exhibitor will show an ice water tank made to be fitted just back of the front seat.

There will be a second exhibition of combined passenger and commercial cars at Grand Central Palace, New York's handsome exposition building, running from January 10 to 17.

The Garden show is restricted to members of the old Association of Licensed Automobile Manufacturers and makers of electric vehicles who have been exhibitors at Madison Square Garden for the last five years or more. The Grand Central Palace show is "open" to all manufacturers, but will not include displays by makers who have exhibits in the Garden.

From January 27 to February 3 there will be a passenger car exhibition, and from February 5 to 10 a commercial vehicle exposition in the Coliseum and First Regiment Armory, Chicago. All manufacturers are eligible for the Chicago show, which is the only one that will be held in that city, and it will include exhibits by most of the makers who display at the New York shows.

During the two weeks' show period in New York more than 100 different makes of passenger cars and 70 makes of work vehicles will be on exhibition simultaneously. In Chicago more than 90 makes of pleasure cars will be shown during the week of January 27 to February 3, and the following week more than 60 different makes of business machines will be exhibited.

The educational advantages of these big shows are very obvious, as all the principal makes of trucks and delivery wagons can be examined and compared as to design, workmanship and price. There the experts of a dozen or more companies may be consulted without incurring any obligation to buy from any company that confers the favor of such advice. It will be possible in one or two days' time to gather information at the shows that would require months of effort to acquire in any other way. In all, fully ninety different companies will display their newest models this winter, among which will be many never before in the market.

The Firestone Tire and Rubber Co., Akron, Ohio, is very well pleased, and with cause, at the record made by "Jack" Handley, of New York, who recently took a twenty-five day run from that city to San Francisco, going through the Royal Gorge, Rattoon Pass, and over the Glorietta Mountains, where the roads are not particularly smooth and even, and arrived at the end of his trip without a puncture or a blow-out.

THE AMERICAN CONSUMPTION OF GOLF BALLS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The number of golf balls manufactured in this country every year is a trifle over 100,000 dozen, in fact, the figures will not exceed 110,000, and if you name the latter figure, you may feel sure that you are within 5 per cent. of the correct amount, possibly even closer than this. Naturally, this is somewhat different from one million dozen.

I should think that England used two or three times more than we do here. This is easily accounted for, because the English people play far more golf during the week than we do in this country where golf is largely confined to Saturdays and Sundays.

You may also be interested to know, and you can state this, if you wish, in your January issue, that the price of golf balls will be reduced this year, the cheapest grade going back to the old price of $6 per dozen, or 50 cents each at retail. We were compelled to make an advance on account of the increased cost of rubber, and this advance having held for two years, we now return to the old figures.

Daily papers love to publish sensational figures, and really no one cares, but a trade paper like your own, which is considered an absolute authority, and which is so considered by this firm, copies of it being constantly carried on file not only here, but at our factory, should publish only facts, and these facts regarding the athletic goods business, I am always prepared to give you. Yours very respectfully, JULIAN W. CURTISS.

Second vice-president, A. G. Spalding & Bros.

A NEW USE FOR GARDEN HOSE.

AN inventive member of Engine Company 23, New York, has devised an altogether new use for garden hose, and, if it proves successful, a very important use; namely, to supply

RUBBER NOSE GUARDS FOR FIREMEN.

firemen who are working in the smoke of a burning building, with fresh air. The method is as follows:

A length of garden hose is attached to the water hose, one end, which is covered with a screen so that nothing but air can enter, being outside of the building. The other end, which is attached close to the nozzle of the hose pipe, is carried into the building with the firemen. It is a well-known principle of physics, that the high pressure of the stream as it leaves the nozzle of the hose, creates a temporary vacuum at that point. The result is, that air from the outside rushes through this hose to fill this vacuum. Attached to the inside of the garden hose are several small tubes a few feet long, having at their other end a device similar to the nose-guard worn by football players. This nose-guard fits tightly over the fireman's nose, being held in position by the teeth. When the firemen wear these devices, they can get a supply of pure air in the midst of the densest smoke. The invention has been tested several times by New York firemen, with satisfactory results. If further tests confirm the good opinion created by the tests already made, the device is likely to be adopted generally.

A NEW COMMITTEE ON RUBBER ANALYSIS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: It is a well-recognized fact that the art of analyzing rubber compounds has not reached the state of perfection which the commercial importance of rubber products seems to warrant. Various chemists have developed methods of analysis possessing more or less merit, but at the present time these methods cannot be relied upon to give concordant results. Users of rubber insulated wire are particularly interested in the analysis of rubber compounds owing to the recent practice of inserting chemical clauses into specifications. The manufacturers are equally interested, because in the present state of the art they are likely to have insulation refused by their customers, not because it is defective, but because some unforeseen method of chemical analysis indicates that the specifications have not been complied with. Chemists are interested not only in the scientific aspects of the problem, but also in its commercial aspects, because the chemical specification for rubber, with all it implies in its relation to chemists, will drop out of use unless the chemists are able to stand back of it with an analysis that cannot be controverted. Realizing these conditions, Mr. E. B. Katte, chief engineer of electric traction of the New York Central Railroad, invited a number of prominent manufacturers, consumers and chemists to a conference, at which the subject of rubber specifications could be discussed and steps taken to secure the desired uniformity in rubber analysis.

The conference was held on December 7 at 335 Madison avenue, the attendance including representatives of the United States Army, the New York Central Railroad, the Pennsylvania Railroad, the General Electric Company, the Standard Underground Cable Company, the Simplex Electrical Company, the Hazard Manufacturng Company, the American Chemical Society and several chemists who have made a specialty of rubber analysis. Major Samuel Reber was elected chairman, and after a discussion of the various aspects of the problem the following committee was nominated to determine a standard procedure in the analysis of rubber compounds:

Mr. H. B. Rodman, chemist, Pennsylvania Railroad, Altoona, Pennsylvania.

Mr. C. R. Boggs, chemist, Simplex Electrical Company, Cambridge, Massachusetts.

Mr. W. B. Gieser, chemist, New York Central Railroad, Albany, New York.

Mr. P. Poetschke, chemist, the Lederle Laboratories, 39 West Thirty-eighth street, New York.

Mr. James P. Millwood, consulting chemist, 246 Willoughby avenue, Brooklyn, New York.

Mr. Wallace Clark, head of the wire and cable department of the General Electric Company, Schenectady, New York.

Mr. W. A. Del Mar, assistant engineer, New York Central Railroad, 335 Madison avenue, New York.

The work of the committee will be largely in the nature of laboratory tests and comparison of results by correspondence and periodic meetings.—W. A. DEL MAR, Secretary.

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

AN INDEX to the improved condition of trade generally is to be seen in the rise in ocean freights. Ship owners after a long period of grumbling are now obtaining very satisfactory rates, owing to the shortage of available tonnage. They don't flatter themselves that the present spell of activity will prove lasting, but still they are too jubilant at the moment to indulge in gloomy forecasts of what the future may have in store. Activity in shipping, of course, has its effect upon stores among which mechanical rubber goods hold an important place. Another revival which deserves mention is the important though more local industry of Lancashire. This trade, owing to the high price of the raw material, has been in a depressed condition for quite a long time. Now, however, with the fall in price of cotton a great improvement, amounting almost to a boom, has taken place. Mills are filled up with orders for six or nine months ahead, and even those new mills which sprang up like mushrooms during the last boom of five or six years ago, and which were never put into commission, have now hurriedly been got into working order. In one way the rubber manufacturers are suffering because they cannot get their orders for cotton cloth filled as quickly as they would like. On the other hand, the boom, of course, means an increased demand for the mechanical and other rubber goods used in the cotton manufacturing industry. As a set-off to the cotton revival the engineering trades generally are very quiet, many large engine makers being glad to take orders at almost any price in order to keep their works going. Turning to the raw rubber market, what is agitating the minds of directors of plantation companies is the fact that rubber remains at a comparatively low figure. The explanation seems to be that at the boom time the manufacturers somewhat lost their heads and bought in advance at any price, so as to cover their requirements in case of further phenomenal prices. They got hit on that occasion and now hold off the market when prices show a tendency to rise beyond a certain figure.

TRADE CONDITIONS.

WITH respect to the operations of this company, in extracting rubber from jelutong, the end aimed at seems to have been achieved, the rubber having been extracted from the jelutong on a large scale and sold at a satisfactory price. I have often wondered whether the sale of the large amount of resin produced in this process is necessary in order to render the process dividend-paying, and I have further wondered if so, whether a sufficient outlet could be found for it. Now it appears that if the market has hitherto been restricted this will not be the case in the future; that is, if Mr. Carleton Ellis' patent for utilizing it in the manufacture of varnishes for cement turns out as successful as he seems to think it will (see INDIA RUBBER WORLD, November 1, 1911). Mr. Ellis states that this resin, owing to its being unsaponifiable, is well adapted as a base for paint and varnish on material containing free alkali. I know nothing of the amount of such paint or varnish likely to be wanted or whether its adoption will be opposed by vested interests. Anyhow, the project is of some importance and will encourage the producers of jelutong resin until some other proposal is made for its use. Apropos of this it may be mentioned that in earlier days the resin removed from gutta-percha by a big cable company on the Thames was buried in waste ground and when demand for it arose the stuff was disinterred and sold, none now being wasted.

UNITED MALAYSIAN RUBBER.

THE volume about which I propose to say a word or two is not directly connected with rubber, but rather with what are known as plastics, a group of substances of technical importance, which are to be discussed in conjunction with rubber at the forthcoming International Congress of Applied Chemistry in New York. The title of the book is the Nitro-cellulose Industry, its author being Edward Chauncey Worden, of Milburn, New Jersey, and the publishers Constable & Co., of London. In its two large volumes is gathered together practically everything of importance concerning the chemistry, manufacture and applications of celluloid and the pyroxilin plastics, an important and growing industry which largely owes its development to American workers. There are several references to rubber in the book, many of them being to old friends in the form of patent compositions designed to oust rubber from some of its applications, but which in the event never caused the rubber manufacturer any uneasiness. It might perhaps have been more useful if the author in his references to the proposed applications of nitro-cellulose compounds in the rubber trade had given his readers some details as to the course of their life; whether, for instance, they soon came to an untimely end or whether they justified their existence for such applications as artificial leather or electrical insulation where the special properties of rubber are not essential. Then in the case of viscose, though this has found a useful application in the artificial silk manufacture, as far as I am aware its use was given up in the mechanical rubber trade after a short period of probation. A feature of the book is its very complete list of patents connected with the numerous applications of celluloid and pyroxilin solutions in such widely diverse bodies as blastng gelatine, celluloid combs, medical plastics, artificial silk, imitation gold leaf, etc. The full description of the various solvents used in the industry has certainly an interest for the rubber manufacturer who, if he was previously ignorant of the celluloid manufacture, might also derive useful hints from the well illustrated chapters on its manufacturing details. Among references to very recent discoveries is one to Bakelite, which is now, I understand, being applied as an insulating material in America. As there is a good deal of scientific interest in this body, it would be interesting to hear something authentic as to the position it has achieved. In connection with this reference I may say that a company called Bakelite Co., Ltd., has been recently registered in London with a capital of £2,500. I may say that the importance of a foreign company forming an English subsidiary must not be judged by the capital, as such companies are often formed in order to comply with the new requirements of the patent laws and are financed by the parent company.

A NEW BOOK.

Dr. Worden, I may say, is on the committee of the sub-section for rubber and other plastics of the forthcoming International Congress of Applied Chemistry in New York.

IN a recent American official paper on the estimation of sulphur in rubber reference is made to carbonate of barium as a component of rubber goods. Whether the use of this mineral is on a large scale or not in America I do not know, but as far as I know, it is not used in England. Its mineralogical name is Witherite, and its specific gravity is 4.3 against 4.6 in the case of heavy spar, the sulphate of barytes, which has long been used in rubber goods in England. The carbonate is about twice the cost of the sulphate, a fact which is due to its greater rarity. In England there are only two mines yielding carbonate against about twenty yielding sulphate; moreover, those twenty could

BARIUM CARBONATE.

easily be added to if the demand increased, while it would not be at all an easy thing to find another carbonate producer or, at any rate, another one like the big Northumbrian mine, which turns out about 8,000 to 10,000 tons per annum of high quality carbonate. For the manufacture of barium compound, it is easy to understand the advantage of material soluble in acid, but as far as the rubber trade is concerned, I don't quite see what advantage is to be gained by using the higher priced carbonate where plenty of the sulphate is obtainable.

RUBBER RE-FORMING.

The premature death of Sir Charles Lawes-Wittewronge, Bart, has led to changes in the Millwall Rubber Co. Sir Charles was practically the sole shareholder and had spent or advanced altogether about £53,000, £25,000 of this being represented by a debenture. It is understood that profit would shortly have been made, but up to the present the money has mostly been spent in an extensive series of experiments with the Roux and Karavodigne re-forming patents, which had become the property of the company, and were being perfected under the control of a Frenchman.

According to the latest reports, the staff have had official notice of termination of contracts, but the business is being carried on as usual by the receiver on behalf of the executors, who have not yet had time to settle definitely what will be done in the future. It is, however, considered that the business is too good to be abandoned.

The New Southern Rubber Co., Ltd., has gone into bankruptcy, with liabilities of £2,253, and no assets. This company, whose works are near London, was only formed a few months ago to take over a former concern of much the same title. The business carried on was rubber reforming under a license granted by the Simplex Rubber Co., the owners of Gare's patents. The Hazel Grove Rubber Co., Ltd., which was formed some months ago to take over Gare's works at Hazel Grove, near Stockport, are now in full swing and report themselves as full of orders.

ASBESTOS SLATES.

In the construction of a large temporary building recently erected by the Manchester Corporation on a plot of land hitherto vacant in the center of the city, the Calmon asbestos slates and sheets form an important feature. I believe this the first occasion on which this new material has been thus prominently brought to the notice of the passer-by in this important commercial community.

FOOTWEAR AND THE WEATHER.

So far we have not had any wintry weather, and there are but few goloshes on view in the shop windows. Last winter was a very open one, with hardly any snow, and there was no repetition of the rush for goloshes witnessed in the previous winter. Although the golosh is certainly in more general use at the present time than it was a decade back, yet a purchase is rarely made until a heavy fall of snow occurs, the current practice of putting salt on the streets making the rubber a very desirable adjunct to the leather boot.

RUBBER DOINGS IN LONDON.

(By a Special Correspondent.)

THE most notable event which has taken place in London during the last month in connection with rubber is the fit of the blues it has worked up in the Stock Exchange. Brokers and jobbers attached to the Rubber Share Market have allowed themselves to drift into a state of despair, compared with which their depression during the great slump was but a trifling nervous disorder.

In the market itself, the only obvious sign of this demoralizing epidemic that has seized upon the members is the "Nothing Doing" peace and quiet air of the place from morning to night. Occasionally a solitary, gloomy-looking individual may be spotted moping in a corner, but not for many minutes is he allowed to brood over his troubles. Some one soon comes along and slaps him on the back, with a "Cheer up, you'll soon be dead." Or he is made the butt of one of the many practical jokes for which the House is famous. For a most blatant, really aggressive disguise of courage has been popularly adopted as the correct garb for miserable souls during business hours.

Thoroughly to realize how rubber of late has demoralized its share specialists on the London Stock Exchange, it is necessary to live in the same house with one of them, to have the family's privilege of intimate acquaintanceship. At home, their general mood just now is best summed up in that mournful ditty of the dejected street singer, "How I'm cast down!"

In criticising the situation, let me first put the case for the rubber-share specialists as generously as possible. During the "Great Slump," when there was much more reason for the House to be in despair, there was a certain amount of excitement to drive away the blues. Many of the members had to be on the alert, to rack their brains and to bustle about taking active steps of some kind or other to avoid being hammered. There was much wondering as to who would be the next colleague to go under. There was the interest of learning for certain that suspicions had proved justifiable, of saying "I told you so," when this or that company turned out to be rotten to the core. There was a general move of prices, even though it was a downward one. And there was quite a lot of business to be done in the way of selling.

Of late activity of any and every description possible in the market has given place to stagnation. The members have to stand about hour after hour, day after day, doing nothing. Even though a man has enough money to jog along with for some time to come, what can be more depressing than having nothing to do and yet being obliged to stick in one place waiting for the turn of the tide, without any idea as to when it will turn? And if the public does happen to put an odd rubber-share deal in the way of one of its professional representatives, there is practically nothing to be made out of the transaction but commission, for, with but few exceptions, prices are at a standstill. Beyond the dull question as to whether the week's commissions will total up by driblets to an amount that will cover the week's expenses, what interest is there in such business for the professional dealers? No man in his senses becomes a member of the Stock Exchange unless he is blessed (or cursed?) with the speculative instinct. Heart and soul the elect can throw themselves into a deal of chance. Little wonder, then, that they are tempted to feel that the present monotonous game is a dreary business. Many of the victims are talking of giving up the game altogether, of emigrating to Canada, or Australia, or anywhere where they can make a fresh start at earning a living by some other way of work. But truth to tell, this is mere talk, just the latest hobby for passing the idle time away. The man who had to take himself at his word in regard to such proposals would indeed be more sorry for himself than he is at present—and that is saying a good deal. They all mean to hang on as long as they can to the one profession which is thoroughly congenial to them. And if the tide has not turned by the spring, when subscriptions to the House become due again, even the poorest of them will do his level best to get together enough money to pay up for another year's chance. And this fact brings me to my case against them for their present indulgence in an epidemic of the blues.

Since they are all so determined to play Micawber, why not look on the bright side? And really there is a pretty bright side to rubber conditions as a whole just now. The stagnation in share dealing means not only that the public do not want to buy rubber shares at the moment, but that holders are anxious not to give up their partnerships in rubber-growing ventures. Why, if things are as bad as the Stock Exchange would have us believe, is not the Share Market glutted with sellers? Why is not ton after ton

of scrip becoming worthless, as in the "Great Slump" time, instead of remaining steady at quite a decent, all-round figure—ay, even at a really good price, seeing that the plantation rubber industry is still barely out of its infancy.

Apparently, the public are getting back their faith in this industry. Seeing how completely their confidence in it was shaken—although their own folly was mainly responsible for such a catastrophe—is it not rather marvelous that they should already be showing such renewed trust in plantation rubber? Is it not a good sign that they have stopped glutting the market with shares, and so giving a few people, who are thoroughly in the "know," the chance of buying up all the good ones at a next-to-nothing price? For what can this general hanging-on to rubber shares mean except a renewal of faith? Many people must be making sacrifices to keep their stock. And why? Certainly not because they think it will depreciate. Rather they must be arguing, from the general knowledge they are gradually picking up about the whole situation as between wild and cultivated rubber, that there are likely to be more firework interludes before the critical battle takes place; or the speculative attitude of outsiders to the plantation rubber industry may at last be giving place to the more healthy feeling that it has now won the right to be looked upon as an investment. In any case, the public seem to be shaking off their fit of the blues over rubber. It is not, therefore, bad policy for the professional share dealers to be gloomy during such an important period of convalescence for their clients?

As a relief to the nothing-doing-in-general atmosphere of the rubber share market, there have been a few noteworthy activities. The best rise of the month has been in Kuala Lumpurs (£5⅜-£6⅜). Evidently the public have spotted the good points in this company's latest report, although they had to take their chance of being overshadowed by a decrease of profit on the year's output, as compared with the previous year's returns. The most sensational drop has been in Tangkahs. In view of the startling suggestion for raising further capital that has been proposed by the directors of this company, it is not at all surprising that the shares should have fallen in one day from 11/3d to 2/6d. This scheme has been so widely discussed that there is no need for me even to outline it. Suffice to say that the proposed Irredeemable Second Debentures are very expensive straws with which to invite the shareholders to save themselves. The most auspicious flotation has been Pegoh, Limited, with property in Malacca. The shares allocated for public issue were offered for subscription at a premium of 10/; they were eagerly taken up, and have since risen a further 8/9d.—quite a record state of affairs in these days. Linggis have hardened slightly, but the attitude of the market towards them is shown by the fact that a call can still be obtained on them for 1/6d., at the current price, up to the end of the year.

Prices have varied but little at the auctions. Hard Pará has fluctuated during the last month between 4/3d. and 4/5½d. The highest prices fetched by plantation rubber during this period has been between 4/7d. and 4/10¼d. Judging by the latest sales, business is inclined to be more brisk, and prices have a tendency to harden. The demand still favors plantation grades. At the last fortnightly sales held at the London Commercial Sale Rooms, Mincing Lane, E. C., the record quantity of 545 tons of plantation rubber was offered. The best price was made by Pale Crêpe, which sold up to 4/10¼d. Lanadron Block came next, fetching 4/9¾d; then Highland Smoked Sheets at 4/9½d, and Vallambrosa Smoked Sheets at 4/9¼d. A general fall of 2d. in smoked sheets was a feature of the sales.

NEW ANTWERP-BRAZIL STEAM LINE.

ACCORDING to Brussels advices, a new line of steamers (outside the Conference) is about to be established between Antwerp and Brazilian ports by the firm of Siebert & Co. It is understood that the firm of Horn & Co., Hamburg, will be associated in the enterprise.

SOME RUBBER INTERESTS IN EUROPE.

THE LONDON CYCLE AND MOTORCYCLE EXHIBITION.

THE management certainly has every reason to feel gratified at the success of the Second International Cycle and Motorcycle Exhibition held in Olympia, London, from November 20 to 25. It was a success from every standpoint, the number of exhibitors, the size of the exhibition and the number of visitors being much larger than a year ago.

The exhibition included everything connected with the cycle and motorcycle manufacturing trade. Some idea of the number of exhibitors may be obtained from the fact that the exhibition catalogue comprised 256 pages.

Among the exhibitors were the B. F. Goodrich Co., Ltd., which made a fine display of motorcycle covers, endless tubes, patches, horn bulbs, lamp tubing, and cycle tubes, besides various other accessories.

The North British Rubber Co., Ltd., of Edinburgh, also had a most interesting exhibit, including the famous "Clincher" cycle and motorcycle tires, showing the "Featherweight," the "Carrier" and the "Dreadnought" brands.

An interesting feature of the exhibition was the excellent programme of music rendered at intervals during the afternoon and evening, from 2 to 9.45 p. m., by the Coldstream Guards Band.

THE DUNLOP RUBBER CO.'S REPORT.

More than usual interest attaches to the report of the Dunlop Rubber Co., Ltd., for the business year ending August 31, last Reference is made to the abnormal variations which had again taken place in the price of rubber, ranging from the equivalent of $2.01 on September 1, 1910, to $1.13½ on August 31, 1911. It is remarked that the latter figure may be regarded as approaching the normal conditions of 1907 and 1908, the two years previous to the rubber boom; the average prices having equaled in the former year $1.07½ and in the latter $1.01½. The view is expressed that fluctuations on the recent scale are hardly likely to occur again; the directors being of opinion that the company's business will now resume its normal course.

Owing to having had to work up high priced rubber in the production of reserve stock, the trading profits of the company were adversely affected during the business year 1910-1911, by the sale of this stock upon a rapidly falling raw rubber market. This difficulty having been anticipated by the creation of a "Rubber Fluctuation Reserve" equaling $500,000, the funds at the disposal of the directors are sufficient to pay in dividends the same amount as last year.

DISTINCTION FOR A RUBBER MERCHANT.

"LA METROPOLE," of Antwerp, calls attention to the fact that the King of Belgium, in recognition of the services rendered by him to the cause of Belgian colonization, has created M. Willy Van de Velde a Chevalier of the Order of Leopold. This gentleman has long been a prominent figure in the commercial life of Antwerp, being president of the company which acquired the business of the old firm of L. & W. Van de Velde, of that city. He is likewise identified with various companies operating in Katanga and the eastern portion of Belgian Congo.

CHANGE IN AN AMSTERDAM RUBBER FIRM.

F. JOOSTEN, the well-known Amsterdam rubber broker, announces that Ernest Janssen has joined him as partner, the style of the new firm being Joosten & Janssen.

They are distributing a placard giving the dates of the 1912 Amsterdam auctions, which are: January 19, February 16, March 15, April 12, May 10, June 21, July 19, September 20, October 18, November 15 and December 11. Catalogues will in each case be issued fifteen days previous to the above dates; entries closing five days earlier still.

The Rubber Industry of Japan.

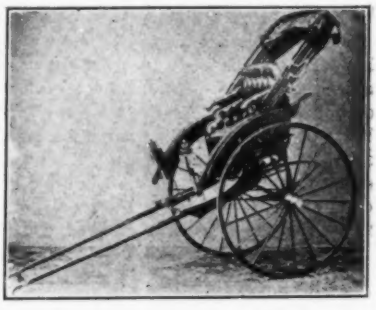
(By our Special Correspondent.)

JAPANESE JINRIKISHAS AND RUBBER TIRES.

JAPAN exported in 1910 jinrikishas to the number of 14,197, of the value of $209,177; as compared with 9,004, worth $133,399 in 1909; this increase being mainly the result of the development of rubber cultivation in the Malay Peninsula and Southern India. The demand was largely due to the fact that many local workers and tappers, not finding employment in their regular avocations, had become jinrikishamen; another reason being that the establishment and development of rubber plantations was in many cases so rapid and successful as to require many jinrikishas for traveling around. The exact figures are as follows:

JINRIKISHA FOR ONE PERSON.

JINRIKISHA FOR TWO PERSONS.



JINRIKISHA FOR ONE PERSON.

JAPANESE EXPORTS OF JINRIKISHAS.

	1909.		1910.	
	Number.	Value.	Number.	Value.
China	1,275	$21,086	1,286	$21,548
Corea	426	6,423	218	3,289
British India	685	13,503	1,406	31,172
Straits Settlements	6,396	86,361	11,027	148,128
All other countries	222	6,026	260	5,040
	9,004	$133,399	14,197	$209,177

During 1911 the exports of jinrikishas have been less than those of 1910.

Of the jinrikishas exported from Japan, 50 per cent. have iron tires and 30 per cent. solid rubber tires; the remaining 20 per cent. being without tires. These go to the Malay Peninsula and Southern India, where they are supplied with tires which have been directly imported to those markets from England.

At Tokyo there are now about 40,000 jinrikishas, 70 per cent. of which are owned by jinrikisha men, stationed at the corners of streets, while 30 per cent. belong to private individuals, by whom they are used exclusively. Of the above-named 40,000 vehicles, 90 per cent. have rubber tires (only few of them pneumatic); 10 per cent. having iron tires. Of the Japanese consumption of solid rubber tires, 65 per cent. are manufactured by foreign houses (European and American); those of the B. F. Goodrich Co. being made in the United States, and those of the Dunlop Rubber Co. and the Ingram Rubber Co. in Japan; as well as the B. K. tire. The latest incident regarding imported tires, is a recent advertisement in the leading Tokyo papers, to the effect that the Hartford Rubber Manufacturing Co. is importing jinrikisha tires into Putaba-ya Tokyo. Four-fifths of the above-named 65 per cent. of tires produced by foreign makers are being supplied by the Dunlop Rubber Co.'s Japanese factory. The remaining 35 per cent. of the consumption of jinrikisha rubber tires is made by Japanese manufacturers.

Prices of Japanese solid rubber tires for jinrikishas usually range from $3.50 or $4 each to $6 each, or from $7 to $7.50 for superior quality. The manufactures of foreign concerns sell from $7.75 to $10.75 (a common wholesale price being $10.25).

JINRIKISHA BUILT FOR THE IMPERIAL HOUSEHOLD.

A few solid rubber tires of extra quality sell as high as $19 each, one inch in width; the few tires sold above that price by foreign

houses being charged at $1 or $1.25 per pound. The quantity of pneumatic tires sold is limited, as already mentioned.

Most of the solid rubber tires used (both Japanese and foreign) are ¾ inch in width, while a few ⅞-inch tires are used by rich men; none by the jinrikisha men.

Tires made by foreign manufacturers are used in Japan, notwithstanding their higher price, caused by the heavy duty, because they are three times as durable as those of Japanese makers. The Japanese roads have many pebbles on the surface and are very muddy in rainy weather, so the durability of the tires is an important matter.

JINRIKISHA FOR ONE PERSON.

As to why Japanese tires rank below foreign ones, it is generally considered that the Japanese manufacturers are deficient in skill, but on this point, M. A. Staines Manders writes about the exhibit in London of bicycle tires by the Nippon Gomu Co.:

"It was stated by several manufacturers that the tires were not made in Japan, but probably on the continent. I advised many that I had the assurance that the goods were of Japanese make. One important manufacturer said, if it was so, the tires were of splendid manufacture, equal to European."

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of the values of exports of manufactures of india-rubber and gutta-percha for the month of October, 1911, and for the first ten months of five calendar years:

MONTHS:	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
October, 1911.....	$207,713	$138,183	$532,129	$878,025
January-September ..	1,701,441	1,349,380	5,402,984	8,453,805
Total, 1911.....	$1,909,150	$1,487,563	$5,935,113	$9,331,830
Total, 1910.....	1,759,590	1,906,961	4,687,399	8,353,950
Total, 1909.....	1,469,272	1,288,705	3,478,438	6,236,415
Total, 1908.....	1,049,641	1,157,136	2,940,309	5,147,086
Total, 1907.....	1,168,648	1,401,890	3,345,209	5,915,747

THE above heading, "All Other Rubber," for the month of October, 1911, and for the first nine months of the current years, includes the following details relating to tires:

MONTHS.	For Automobile.	All Other.	TOTAL.
October, 1911.....*values*	$138,744	$43,714	$182,458
January-September	1,941,773	437,201	2,378,974
Total, 1911.....	$2,080,517	$480,915	$2,561,432

NOTES FROM BRITISH GUIANA.

(By Our Special Correspondent.)

A GOVERNMENT BALATA COMMITTEE—SOLUTION OF PRESSING DIFFICULTIES.

MUCH interest is being manifested in the proceedings of the Balata Committee which has been appointed by the government to inquire into the troubles of the industry. Included in the terms of reference are the labor difficulties, the question of communication, and the proposal to cut down balata trees, mentioned in the November issue of THE INDIA RUBBER WORLD. It is admitted, that if the committee solves all these problems satisfactorily, it will have accomplished a large and difficult task, and it will do much to plant the industry on a firmer footing than it occupies at the present time. Labor difficulties are accentuated by the need of different means of communication; the easy journeys into the interior by way of the rivers, which, owing to the number of waterfalls and cataracts, are only navigable for the smallest boats, rendering it possible for the labor forces to take liberties that would not be possible where more rapid communications are available. A meeting of the British Guiana Balata Association was held at the offices of the Essequibo Rubber and Tobacco Estates, Limited, Georgetown, to consider the association's attitude with regard to the government committee. There were present representatives of Ed. Maurer, The Consolidated Rubber and Balata Estates, Limited, The Amsterdam Balata Co., The Britsh Guiana Balata Co., The Essequibo Rubber and Tobacco Estates, Limited, The British Guiana Bank, Messrs. Sprostons, Limited, and of other concerns. It was stated that the government committee would have the power to summon witnesses and take their evidence on oath. It was decided that the government should be informed that the association was prepared to give all the assistance possible. In the course of the discussion the chairman, J. A. King, crown solicitor, remarked that the committee had been appointed by the government not merely upon the recommendation of the British Guiana Balata Association, but, he had reason to believe, upon representations from the United States and British governments.

COMMUNICATION WITH THE INTERIOR—TELEPHONES AND WIRELESS.

The question of communication with the interior was also discussed at this meeting. The chairman referred to the report of Mr. Daley, manager of the Essequibo Rubber and Tobacco Estates, Limited, upon the establishment of wireless telegraphy, and stated that it appeared that a certain firm had said that it was prepared to establish five wireless stations in the interior. He proposed that the firm be asked to make a definite offer. It was also decided to write to certain firms inquiring the cost of an ordinary telegraphic and telephonic system. Mr. Seldon, a director of the Consolidated Rubber and Balata Estates, Limited, who is at present visiting the colony, was present at the meeting, and said that he had personally superintended the putting up of 250 miles of wires for telephones in the east, under conditions very similar to those obtaining in this colony, and that the total cost was only $4,500.

A SURVEY OF THE INTERIOR—A ROAD SUGGESTED.

The government is at the present time engaged upon a survey of the colony from Rockstone to the Potaro for the purpose of railway construction, and it was resolved at this meeting of the association to ask that the survey be continued as far as the Rupununi, which would include some of the richest balata areas. It was pointed out that if the government would undertake such an extension of its task it would be laying the foundation for a permanent road later on.

The first need of the colony at the present time, if the industries of the interior are to be satisfactorily conducted, is a

railway either to the Brazilian frontier, or to districts of known commercial value, and this is one of the main issues upon which the present elections to the legislature are being fought. There is, however, very little difference of opinion with regard to the necessity of such a railway, and it is almost certain that the new combined court, as the local legislature is called, will be pledged Combined Court, as the local scheme for accomplishing that end The promise of the secretary of state to send to this colony an administrator of "proved constructive ability," in succession to the governor who has just relinquished the reins of office, has galvanized public opinion on this matter, to an encouraging degree.

RAILWAY CONSTRUCTION—HOW BALATA INDUSTRY IS AFFECTED.

Apropos of a railway, George Garnett, who was at one time largely interested in the balata industry, and who has already been elected a member of the Combined Court unopposed, delivered an interesting lecture in the Town Hall, Georgetown, on November 13, upon a scheme which he has elaborated. He suggests that a railway should be run to the Brazilian frontier from Georgetown up to the Potaro valley to the Kaieteur Fall, and thence to Boa Vista, Brazil, thus cutting the colony in two. He estimates the cost at $17,500 per mile (which is regarded as an optimistic estimate here), and, taking the total distance at 250 miles, the capital cost would be $4,375,000. Interest at 3½ per cent. would in round figures be $150,000. "Where would the traffic come from?" he asks. "Gold-diggers, balata bleeders and timber people," he replied. With reference to balata he said: "The Siparoni-Rupununi district produces at present over 700,000 pounds of balata. Given easier access, especially if the cutting of old trees be allowed, this could easily be increased to 1,500,000 pounds or more. The cheapening of freight would be fully equal to 8 cents per pound on the cost of production, besides the most important point of view of supervision. A tax of 4 cents per pound would, I believe, willingly be paid, and this would reach a total of $60,000. Taking it that in the gold, balata and timber industries only, 5,000 additional men were employed, or considerably less than the difference in the number now employed and the number which was employed in 1905, and remembering also how tremendously the revenue benefited when gold was at its zenith, a rough calculation can be made of the probable revenue that would come to the government from the earnings of the people. The balata bleeders could earn on 800,000 pounds

INDIAN BANAB, PURUNI RIVER, B. G.

(being the difference between what I consider could easily be produced and what is now produced in those districts) about $180,000. Supposing 4,000 men to be working at gold, timber, etc., for, say, 250 days; in seven years they would probably earn somewhere in the neighborhood of $600,000, or a total of $780,000. Taking three-fourths of this to be spent on food, clothing, liquor, etc., and taking the incidence of taxation at only 25 per

PURUNI RIVER, B. G.

cent., the revenue should benefit to the extent of $147,000." Mr. Garnett's lecture was received with a great deal of enthusiasm by a large audience.

RUBBER SCIENCE IN DEPARTMENT OF AGRICULTURE.

Henry Daley, manager of the Essequibo Rubber & Tobacco Estates, Limited, in a letter which appeared in the local newspapers ventilates what appears to be an undoubted grievance. He points out that some weeks ago the Assistant Director of Science and Agriculture, S. H. Bayley, and other officers of the department inspected the estates under the Rubber-Planting Leases Regulations. Subsequently he wrote to Professor Harrison, Director of Science and Agriculture, asking "whether it is possible to secure a copy of the report made by the Commission of the Agricultural Department that visited Liberty Estates some weeks ago. Doubtlessly, the commission could give us valuable information as to whether the present scheme of planting and drainage is correct, in their estimation. Also with their experience, they might possibly make some suggestions that will enable us to more effectually develop these islands. I have approached you on this matter, as I know you are greatly interested in seeing the rubber plantations of this colony turn out a success. I can assure you that there is, pending certain inspections of land this year, every probability of a new company undertaking the planting of *Hevea* on a very large scale, should these inspections be satisfactory." He was informed in reply that the department regretted being prohibited from divulging the contents of official reports. "I understand the same answer has been given to similar applications made by the Consolidated Rubber & Balata Estates, Limited, and the Bartica Agricultural Estates, Limited," says Mr. Daley. "Why? I understood the Department of Science and Agriculture is in existence to give information and help to planters. When three gentlemen of the experience of the inspecting Commission visit an estate together, their joint impressions and opinions must be of the utmost value to planters, and I can certainly see no object in withholding their report. If this is to be the attitude of the government it is time for planters of rubber here to look around for pastures new."

MORE AMERICAN CAPITAL IN BRITISH GUIANA.

An American syndicate has acquired the property of John Junor (known as "Plantation Vreedstein"), on the left bank of the Demerara River, for the purpose of cultivating rubber. The plantation will be operated under the direction of G. S. Hayes, by a local corporation, which has been formed under the style of the Vreedstein Plantation Company.

Some Notes on Rubber Planting

THE ENGLISH PRESS AND ASIATIC RUBBER PRODUCTION.

IN summarizing before leaving for Europe the results of his recent journey through the Middle East, Mr. E. L. Killick, special representative of the "Financier," of London, expressed the view that the potentialities and absolute soundness of the rubber growing industry are not fully appreciated by the public in general. He saw nothing insurmountable in the apprehensions of labor complications, disease, etc., and considered the only real troubles, from the point of view of investors, are those arising from the over-capitalization of properties during the boom.

Dealing with the various sections covered, he stated that British Malaya compares favorably with Java and Sumatra. While the soil of the latter is superior, the climate on the best estates in Selangor and Negri Sembilan (an infinitely more important consideration) could not be surpassed. Java did not keep up with Malaya, and its rubber would not, in his opinion, do much, except in a few isolated cases.

Ceylon, Mr. Killick remarked, compares favorably with all other places, while the cost at that point will always be low in comparison with a good many sources of rubber. Ceylon rubber he considers "as good as any."

On the crucial subject of estimated production Mr. Killick favors the more recent views which tend to make the figure much lower than had at first been predicted. In his own words, "The cry of over-production and the fears expressed of a fall of prices to an unremunerative level, are nothing more than a bogey."

The interest felt in rubber by the British investing public is shown by the fact that Mr. Killick's tour is being followed by that of Mr. F. W. Knocker (formerly an official in the Civil Service of the Federated Malay States), who is going over the same ground, as a special correspondent of the "Financial News," of London.

THE TRAINING OF PLANTERS.

In commenting upon a suggestion for the establishment of a College of Tropical Agriculture either in England or Ceylon, a local correspondent of the "Malay Mail" suggests as a counter proposal the formation of an "Institute of Tropical Planters," with headquarters in London and with branches in the Federated Malay States and Ceylon. There would be three grades, students, associates and members. A student who displayed the necessary preliminary qualifications would be sent out at his own expense to one of the affiliated estates in Malaya or Ceylon, where he would remain six to twelve months, on a small salary, studying the various branches of planting, in addition to native languages, management of labor and kindred subjects. At the end of the time named, provided he could prove his acquaintance with the details of planting, he would be eligible for associateship in which grade he would have to pass three to five years before he would be entitled to full membership.

Owing to the fact of many retired planters living in England, the centralization of such an institute would be of advantage, while the co-operation of the men controlling the finances of Malaya would also be secured. These considerations, it is remarked, are becoming more and more important, now that rubber planting has settled down into a steady industry.

The comprehensive and exceedingly informing chapter on rubber in the report from the Federated Malay States for the year 1910, to which reference has been made in recent issues of THE INDIA RUBBER WORLD, was prepared by the Director of Agriculture, L. Lewton-Brain.

OLD AND YOUNG RUBBER.

INTEREST attaches to an opinion expressed at the recent London meeting of the Kwaloe Rubber Estates, Limited, by the chairman, Mr. Richard J. Hoffmann, who had lately returned from the East. According to his view, if he had to choose between rubber five or six years old as yet untapped, and rubber eleven or twelve years old, he would certainly choose the younger plantation. This opinion is based on the fact that most of the older trees would have suffered from thinning out, intended to remedy too close original planting, as well as from irregularity in methods of tapping. By modern methods that operation is less drastic in character. Hence, Mr. Hoffmann remarked, the trees of the rising generation should have a longer life and should give better yields.

DRYING CREPE.

OWING to several parcels of thick crêpe having recently arrived in London, not thoroughly dried, and the preference usually accorded that grade has been less marked than usual. Messrs. Gow, Wilson and Stanton, Limited, of London, have, in a recent circular, advised rubber planters not to pack pure crêpe until thoroughly dried; while, if this cannot be relied upon, it is far better to roll the crêpe out thinner.

COMPARISON OF CEYLON AND MALAYA FINANCES.

AMONG other points in which Malaya seems to have been successfully employing modern methods, is that of government finance. In comparing the results thus obtained with those of the sister colony, the "Ceylon Observer" calls attention to the mistake in the latter case of not funding separately the proceeds of all land sales, the latter forming the "capital" of the colony. It is added that:

"We in Ceylon were too late in realizing the importance of these financial administrative steps . . . . and now they have (in Malaya) nearly as many miles of railway as we have—but *all free of any debt!* and plenty of money to go on extending."

RUBBER AND RELIGION.

SEEING the profits of rubber investors, and with appropriate reference to their source, the Bishop of Singapore appeals to shareholders in rubber companies to contribute funds for the purchase of motor cars, to be used by the clergy in the Malay Peninsula. The various estates are long distances apart, without railway facilities, so that the converted Chinamen, Tamils, Malays and Indians are in danger of relapsing into heathenism.

MALAYA FUTURE PRODUCTION OVER-ESTIMATED!

While Sir John Anderson's estimate of 70,000 tons as the Malayan production for 1916 has come to be more or less regarded as an official standard, having been practically confirmed by the independent estimates quoted in Mr. Figart's recent consular report, it has been criticised by Mr. H. L. Coghlan, of Singapore, now in England. He states in a letter to the London "Globe" that the estimate in question was based on an anticipated boom in the fall of 1910 which never materialized.

The prospective result of this turn in the market is emphasized in Mr. Coghlan's expectation that at least 40 per cent. of the "boom" plantings will not reach maturity. He considers it would be nearer the mark to divide recent estimates by 2, particularly in the case of smaller concerns without plenty of available working cable.

NEW PROCESS OF RUBBER TAPPING.

IN a communication to the press, Mr. J. Sheridan Patterson, of Warwick, Ambawella, Ceylon, calls attention to a new system of tapping introduced by him. The originality of the plan is

based on allowing for the annual increase in the girth of the tree, and upon dividing into thirds, instead of fourths, with a view to leaving a strip of untapped bark to perform the functions necessary for the nutriment of the tree. It is claimed that the system works out well, being elastic in character, and enabling a young tree to be profitably tapped when 16 to 18 inches in girth at three feet from the ground. It is, moreover, said to be adaptable to any district or elevation, while the period of renewal can be extended from three years to six years, as desired.

From further details given, it would seem that the leaving of the untapped section increases the yield, and must in any case prove beneficial to the tree.

RUBBER IN PORTUGUESE EAST AFRICA.

ADVICES from Beira state that owing to the position of the rubber market many of the large concessions obtained during the "boom" period will probably remain indefinitely undeveloped. Only three seem at all likely to be worked, each from 200,000 to 250,000 acres in extent. In one case a company has been incorporated and floated, but the property is chiefly devoted to sugar cultivation. Rubber is, however, now being collected on another larger concession, which is expected to become a basis for incorporation at an early date.

RUBBER CULTIVATION IN THE BELGIAN CONGO.

Efforts are being made by the Belgian Government to profit, for the benefit of the Congo plantations, by the experience acquired by Asiatic planters. Four experts, it is officially reported, have been despatched to Malaya and British India for the purpose of studying the methods of cultivation practiced there on a large scale, including the questions of irrigation and of how to combat the various diseases of rubber plants.

One of these experts, a mycologist, is gathering information in Pusa (Calcutta) as to the establishment of phytopathological laboratories. From that point he will proceed to visit the laboratories at Kuala Lumpur, Buitenzorg and other locations. Two others of the party, agriculturists, will study the accessory questions of Indian coffee, cacao and rice culture. The fourth expert will devote himself to the subjects of *Hevea* cultivation, the extraction of latex and its conversion into rubber, on typical Malaya and Ceylon estates.

In the Congo itself, the authorities have been busy, an experimental plantation having been established at Zambi (Lower Congo). A new botanical garden has been opened at the same point.

By the end of the year 1911, it was anticipated that about 2,800 acres would be planted in the Belgian Congo with rubber, about two-thirds in *Hevea* and the balance in *Funtumia Elastica* and *Manihot Glaziovii*. It is, however, contemplated to abstain from further plantings of *Funtumia*, as the yield of this species is too small in proportion to that of *Hevea*.

With regard to the prospects of *Hevea* culture the report adds: "*Hevea* seems to show a normal development within the limits of the great primeval forest. Over 50,000 acres of suitable character have been surveyed in the equatorial district, while there are more than 500,000 young *Heveas* in seed-beds at Sarela and other stations."

Among other features of the report are statements that experiments have been made in a new method of tapping *Manihot*, and that up to the present no serious disease has been reported among the rubber trees of the Congo. It is said, moreover, to be the intention of the Government to discontinue a certain part of the cultivation of rubber vines; possibly relinquishing that branch in favor of the natives.

J. C. Wilis, formerly director of agriculture at the Botanic Garden at Peradeniya, has been appointed director of the Botanic Garden at Rio de Janeiro, and expects to assume his duties there in the spring.

ENGLISH REPORTS ON CONGO PROGRESS.

The English Board of Trade Journal states that as a result of trials made, it is in contemplation to considerably extend the experimental cultivation of *Hevea Brasiliensis* in the equatorial regions. With this intention, considerable quantities of *Hevea* seed have been imported from Ceylon.

Funtumia Elastica, while developing satisfactorily in some regions of the Congo, does not appear capable of bearing repeated tappings over a long period as well as *Hevea*. It is stated that while the yield of latex at the first tapping is greater than from *Hevea*, at the end of a few days the secretion ceases. Regular experiments, while the results have been encouraging, have apparently demonstrated that the quantity of rubber from *Funtumia* is much less than from *Hevea*.

The prominence being given to *Hevea* cultivation is further recorded by Mr. H. G. Mackie, the British Consul at Boma. He states that a number of the larger and best equipped plantations are being devoted to the exclusive cultivation of *Hevea Brasiliensis*, while many smaller plantations have been abandoned, their upkeep causing a useless outlay. The Congo Government recognizing the merits of that species, is said to have planted 30,000 *Hevea* trees. At the same time the results of planting *Manihot Glaziovii* are said to be encouraging.

Experiments are likewise in progress with other varieties, including a latex-yielding *Euphorbia*, introduced from Central America. As soon as the tapping of the trees becomes practicable, it is proposed to establish the industry on scientific lines, such as those obtaining in Malaysia.

SOCONUSCO (MEXICO) RUBBER PLANTATIONS.

During the first business year of the above company a quantity of 20,290 pounds was produced, which realized the average equivalent of $1.04 per pound for the best grades.

In view of this quantity falling considerably short of the original estimates, the calculations of the late Dr. Olsson-Seffer have been criticized by various shareholders. However, he is dead and his mistakes are buried with him. The board has been taking active steps to put the company's holdings in a profitable condition, and the hope has been expressed of that result being attained in the future.

Under these circumstances the directors have waived one-half of their fees for the current year.

In the report of the directors for the year ending June 30, 1911, it was mentioned that the late Dr. Olsson-Seffer had estimated the output of rubber for that year at 215,625 pounds, while Horace E. Levesley, who succeeded Dr. Olsson-Seffer, placed his estimate at 60,000 pounds, both estimates, it will be seen, being very much larger than the product actually secured.

The report states that the small output is largely due to the fact that about half the rubber trees that were first planted were placed under the shade of the aboriginal forest trees, it being the opinion at that time that *Castilloa* required shade. The work of cutting out these shade trees was begun some time ago, with the expectation that the yield will now be much greater. It is hoped that it will now amount to 60,000 pounds. The quality of the rubber has proved satisfactory and it has enjoyed a ready sale, at an average price of about 12 cents per pound below the price of fine Pará.

The Joliet Tropical Plantation Co. recently held its annual meeting, and listened to the reports of the various officers. The superintendent of the plantation (which is located at Oaxaca, Mexico), reported 400,000 trees on the plantation, and added that 200,000 of them would be ready for tapping this year. J. O. Barrett, George B. Carey and Robert Pilcher were re-elected directors, and F. M. Muhlig was chosen inspector to make a trip to the property in the early future and report to the stockholders.

DRINKING RUBBER.

A LONDON publication, in giving some news on the rubber situation, cites the following historical facts—often mentioned before but interesting to recall—regarding rubber, from which it will be noticed that South Americans of two centuries ago thought the latex of the rubber tree an effective antidote for hemorrhage: "The first European mention of rubber was as a toy. One of Columbus' lieutenants reported that the natives of Hayti played games with balls made from the gum of a tree. But the tree was not identified until 1615, when Torquemada mentions its sap as good among other things for removing tightness of the chest. It was also drunk to stop hemorrhage, and even then was being used by the Spaniards to waterproof their cloaks. But it took long for America to walk on rubbers—and the world to ride on them."

THE STATE OF PARA IN 1910.

MORE comprehensively and in greater detail than most other like summaries, the official report of the State of Pará for 1910 deals with many points of general interest as to the cultivation and distribution of rubber.

In the opening remarks the broad proposition is again enunciated that rubber deserves the support of the State government, in the same degree as has been the case in São Paulo with coffee, and with the anticipation of results equally successful and encouraging in Northern Brazil.

Dealing, as it does, with the history of 1910, the Manáos Congress of February 22 to 27 of that year receives appropriate notice, special mention being accorded to the suggestions tendered on that occasion by the editor of THE INDIA RUBBER WORLD, for the benefit of planters, as being a typical expression of the views of the rubber industry at large.

The preponderating importance of rubber to the State of Pará is shown by the fact that the article forms 95 per cent. of the total amount of exports of that State and contributes 98 per cent. of its export duties. The share of Pará in the world's production is illustrated by the following statistical return:

WORLD'S PRODUCTION OF RUBBER.

PARA OFFICIAL FIGURES.

	1909.		1910.	
	Tons.		*Tons.*	
Federal Territory of Acre....	10,500		11,565	
State of Amazonas	10,700		10,454	
State of Pará	11,400		10,257	
State of Matto Grosso.....	2,200		2,300	
Island of Cajueiro (Piauhy).	150		200	
Republic of Peru	2,700		2,495	
Republic of Bolivia	2,300		2,486	
Republic of Venezuela	34		25	
Republic of Columbia	6		18	
(South America)		39,990		39,800
Central America		5,000		6,000
East Africa	5,460		4,200	
West Africa	15,500		14,800	
		20,960		19,000
Ceylon and Malasia plantations.....		4,050		8,200
Total tons		70,000	Total tons	73,000

CONSUMPTION.

While, owing to a typographical error, the official figures are not quite clear, they would apparently indicate that the world's total production for 1910 was 73,000 tons, with a total consumption of 70,000 tons (or more than double the 33,952 tons recorded for 1895). American consumption had in that period only advanced from 17,044 tons to 28,636 tons, or about 68 per cent. Another point of interest shown is that South America, which supplied in 1895 about 60 per cent. of the American consumption, now only furnishes about 50 per cent., the remaining 50 per cent. coming from other countries, as against 40 per cent. fifteen years ago.

DESTINATIONS OF SOUTH AMERICAN RUBBER EXPORTS.

In connection with the estimated South American production for 1910 of about 40,000 tons (as shown in tables of world's production), interest attaches to the following details of the ports to which shipments were made in that year.

	Tons.
Antwerp	88
Hamburg	814
Havre	3,988
New York	14,622
Liverpool	18,086
Tons	37,598

The larger proportion of exports to Europe as compared with America, already referred to, is thus further illustrated, as well as the continued preponderance of Liverpool as a rubber importing point.

PROPORTIONS OF VARIOUS QUALITIES OF RUBBER.

As shown in previous tables, the State of Pará 1910 production was 10,257 tons. Dividing this quantity amongst the various qualities, the following proportions are shown:

	Tons.	*About*
Fine	4,610,228	45%
Entrefine	403,371	4%
Sernamby	4,047,366	39%
Caucho	1,196,052	12%
Mangabeira	340	Nominal
Tons	10,257,357	100%

FUTURE SUPPLY OF RUBBER.

Regarding the question of future supply, the opinion is expressed that no large increase can be expected in the production of forest rubber, the consequent urgent necessity being pointed out of developing plantations. The view of Señhor Amando Mendes is quoted, to the effect that the most vital problem for the State is to meet the competition of Asiatic rubber by plantations established upon a large and systematic scale. Only by such a course, it is added, will the cost of production be reduced to such an extent as to facilitate competing with the Far East.

As to the future supply to be looked for from Asia, the estimates which have been put forward of 70,000 tons annually from that source within four years are referred to as being based upon a much lower cost of production than prevails in the State of Pará.

While only a few of the salient points in the able report of Dr. José Antonio Picanço Diniz have been quoted, they may be regarded as typical of his work and its treatment of the important question of South American production as a factor in the world's rubber supply.

IMPROVEMENTS AT PORT OF PARA.

THE expenditure of the Brazilian Government on the improvements now approaching completion at the port of Pará is said to represent nearly $39,000,000. More than four years have been occupied in the work. In addition to providing facilities for docking, dredging, warehousing and other operations directly connected with the needs of the port, efforts have been made to improve the existing hygienic conditions; particularly by eliminating the mosquito, for which purpose large sums have been reserved by the State and municipal governments.

NEW TRADE PUBLICATIONS.

THE B. F. Goodrich Co., Akron, Ohio, is distributing a number of publications on various branches of its factory work. The most pretentious of them is a 20-page catalogue 5 ins. x 8 ins., finely printed on a superior quality of paper and descriptive of the mats, matting, and interlocking and inlaid tiling made by the company. The great superiority of rubber matting over other styles of floor covering, by reason of its cleanliness, its noiselessness, the perfect evenness with which it lies on the floor, and in the long run its inexpensiveness, has long been recognized. This catalogue not only describes the great variety of mats, but illustrates them with handsome half-tones, printed in colors.

Among the other publications just issued by this company are a four-page illustrated leaflet, descriptive of grain belts; a folder describing long-length pneumatic hose; and a folder arranged in an ingenious way and printed in three colors, describing the various articles and preparations which the company makes for repairing tires.

There is one other publication entitled "A Question of Profits," which addresses a sound argument to local hardware dealers in favor of carrying Goodrich valves.

All of these catalogues and leaflets are good examples of the printers' art.

Jenkins Bros., New York, have sent out a little pocket catalogue entitled "Facts About Jenkins Bros.' Valves." They describe their various valves with half-tone illustrations, covering many of the varieties which they sell. They call attention to the marked superiority of their composition disc valve over the old style of solid metal seat pattern. The Jenkins' disc being somewhat resilient, presents a slightly yielding surface to the valve seat, and adapts itself to any roughness or unevenness of the seat, and in this way insures perfect tightness. If the disc should become cut or worn, a new one can be substituted quickly and cheaply.

La Favorite Rubber Manufacturing Company, Paterson, New Jersey, has recently issued a 64-page catalogue describing and generously illustrating the various goods made by the company, covering their lines of packings, gaskets, tubing, valves, bellows, fold couplings for Pullman cars, hose, diaphragms, mats, etc. There are two features of the catalogue that are of special interest. One is "Armorplate" steel packing, one of the latest inventions of President Edward L. Perry. This packing is the result of a desire to produce a sheet packing that would resist the intense dry heat created by superheated steam, that would not deteriorate when kept in the engine room, that could be easily cut with a knife and could be put up in rolls of a continuous length. Another addition to the products of this company is the "Marvel Lip" packing, which was originally made to use on gauge glasses where the boiler pressure did the packing in place of the wrench. This same principle has been adopted in this new packing, which is intended for use in steam pistons, elevator plunger rods, hydraulic pump plungers and the plungers or jacks of hydraulic presses and lifts.

The Swinehart Tire and Rubber Company, Akron, has just issued a little brochure of twenty pages well printed on a high grade paper, and with a tasteful, stiff paper cover, describing and illustrating its solid and cushion tires and motor-buggy tires. It shows a number of the cross sections of the Swinehart solid two-wire tire, and also single-wire cushion tire. It illustrates tires made by the company for motor-buggies and light delivery wagons. The book is in no sense a catalogue, but is likely to stimulate a desire to see their catalogue.

The Firestone Tire & Rubber Co. are distributing folders on their non-skid tire, illustrating the lettered tread. It points out the advantages of this peculiar construction and the extra thickness of rubber on the tread.

Katzenbach & Bullock Co., Inc., Trenton, New Jersey, have issued a catalogue giving a list of the imported and domestic chemicals in which they deal. The first 8 pages are devoted to an alphabetical enumeration of these chemicals, together with brief descriptions. Some 12 pages are devoted to an alphabetical list of the trades which they are prepared to supply; the chemicals pertaining to each trade being put under their proper classifications. It is a small catalogue and can easily be carried in the pocket, but it gives a great deal of useful information.

The November number of "The Goodrich," a monthly publication issued by The B. F. Goodrich Co., Akron, Ohio, is especially interesting because of the account given therein of the illustrated lecture campaign which has been conducted by this company for some time past, and obviously with extraordinary success. These lectures are given by F. M. Tillisch. They are entitled "From Tree to Tire," and with the assistance of moving pictures they give the audience an interesting and graphic story of rubber from the time it issues as latex from the tree until it is made into a tire ready for service. A number of photographs are reproduced showing the enormous audiences that have convened to listen to these lectures. This is an admirable method of publicity, though conducted as it is by this company, it entails some expense and necessitates a carefully thought-out method of operation.

The Underwriters' Laboratories, Inc., Chicago, Illinois, have issued a little book of 32 pages, descriptive of the object and the work of that incorporation. The object of the Underwriters' Laboratories is to bring to the user the one best obtainable opinion on the merits or demerits of appliances in respect to the fire hazard. Such appliances include those designed to aid in extinguishing fires, such as automatic sprinklers, pumps, hand fire appliances, hose, hydrants, nozzles, valves, etc.

The work of the Underwriters' Laboratories is confined to investigations having a bearing upon the fire hazard, and is undertaken as one means of securing correct solutions of many of the problems presented by the enormous and disproportionate destruction by fire of property in the United States.

McCord Manufacturing Co., Detroit, Michigan, is circulating a little octavo booklet of 16 pages and cover, in various tints of brown, entitled "Heart Trouble in Your Power Plant." The writer likens the boiler, piping and engine of a manufacturing plant to the heart in the human system and maintains that a loss of energy in either of these two institutions is fatal to the general welfare; after which he goes on to discuss leaky joints and the desirability of using the McKim gasket, manufactured by this company, to remedy the difficulty. The same company is also distributing an illustrated catalog entitled "The McKim Gasket," giving detailed information covering the variety of gaskets the concern manufactures and the sizes and prices of each.

A SET OF HUMOROUS HANGERS.

Alexander Macpherson, a dealer in crude rubber, of No. 96 Spadina avenue, Toronto, Canada, has issued a set of six cards, in size 5¼ by 8¼ inches, furnished with cord for hanging, on which there are sundry amusing texts. One, for instance, reads as follows:

"MARKET REPORT.

Any old place. Any old time.

Mr. Manufacturer,

Anywhere.

Dear Sir:—

Market firm and advancing, with a strong downward tendency. Advice you to buy freely at once, or refrain from buying as you may see fit. Yours faithfully,

OLD-KNOW-IT-ALL."

The others are in similar vein, although four of them in addition to humorous text, have comic illustrations. They will all interest dealers in crude rubber.

The Editor's Book Table.

LE CAOUTCHOUC AMAZONIEN ET SON CONCURRENT ASIATIQUE. Paul Le Cointe (reprinted from "Le Caoutchouc & La Gutta-Percha," Paris.) [8vo, pp. 56.]

Dealing with the past history of the competition of Asiatic plantation rubber with the Amazonian product, M. Le Cointe states as his general opinion, that notwithstanding the importance of the change in the economic situation of Amazonia, it has been greatly exaggerated. For his part, he absolutely does not believe in the positive ruin of that vast country, through the absolute triumph of Malaysia as a source of rubber. He points out, however, the fact that it is only within a comparatively recent period that Malaysian rubber has assumed a position of importance, but that production in that quarter may be expected to rapidly increase.

Of equally practical interest is the other side of the question—at what figure is consumption to be estimated. In his words:

"Since 1900 consumption has increased about 6 per cent per annum and at present equals the production. . . . It would thus, by 1920, have only reached 280,000,000 pounds, but it would suffice for the rate of increase to be 8 per cent. for the consumption to reach 340,000,000 pounds, and to largely exceed the production. As rubber is being more and more generally used, and new applications of this product are being every moment found, there is no reason to consider this annual rate of increase as being exaggerated."

On the other hand, attention is drawn to the fact that there is a limit to the multiplication of *Hevea* plantations in Asia, which limit will soon be reached. This is due to the fact that there is difficulty in finding in the tropical regions of the Far East, new lands suited for rubber cultivation. Hence, it is added, even with a normal development of existing plantations, there is really no imminent danger of over-production.

Looking at the matter from the Brazilian point of view, it is urged that Asiatic rubber can only, through its competition with Pará, bring down by degrees the price of the latter. It is not the apprehension of being unable to find consumers for his rubber that ought to trouble the Amazonian planter, but the undeniable fact that he cannot always hope to sell at a remunerative price, unless he succeeds in greatly diminishing his present cost of production. The above-named prospective fall in the price of Pará rubber will, it is added, be very slow, as the manufacturing industry will always give *Hevea* the preference, while lower rates for the latter would facilitate its being used in place of inferior grades, and for purposes from which it is now excluded by its high price. An automatic restoration of equilibrium would be effected, rendering but little probable a rapid depreciation, ruinous to the producer.

In discussing the subject of synthetic rubber, M. Le Cointe expresses the opinion that under existing conditions the synthesis of rubber cannot be realized in the proper sense of the word; the substances produced rather being new types supplementing those furnished by the vegetable kingdom. He adds it would be very difficult to obtain artificially a body presenting the complete *ensemble* of the qualities of Pará, in the same degree and at a commercial price. In confirmation of this statement he quotes the fact that the product recently obtained by M. Richard (the French expert) while it could even be vulcanized, was only made in small quantities at a very high cost.

Concluding his remarks upon the question of synthetic rubber, M. Le Cointe says: "This time, again (as in the case of Asiatic rubber) the Brazilian rubber planter will only suffer to the extent of a slight emotion."

Many other points of interest (both actual and prospective), regarding Asiatic and Brazilian rubber, are dealt with in this interesting article.

THE RUBBER-PLANTER'S NOTE BOOK. BY FRANK BRAHAM, F.R.G.S. London: Crosby Lockwood & Son, 1911. [Cloth, pp. 108.]

In this handy but comprehensive little work, Mr. Braham has grouped a number of facts and recommendations of interest to rubber planters. Its sections include: nurseries, planting, tapping, etc.; machinery, literature of rubber, etc.; preservation of health in tropical climates; rubber-growing countries; as well as the various troubles to which planters are subject.

Special interest attaches to Mr. Braham's remarks, to the effect that there is every probability of a large commercial demand arising for Pará rubber seed, as it is known to contain a clear light yellow oil, akin in its properties to linseed and cottonseed oils, its residue, moreover, including elements useful for cattle food. It is added that in view of the prospect that the supply of seed for planting will soon exceed the demand, it would be wise, when other machinery is being erected, to keep in view the possible inclusion at a later date of crushing machinery. The avowed purpose of being used in the field is facilitated by its size (6½ x 4½) allowing this book to be carried in the pocket.

A CULTURA DE HEVEA NO ORIENTE E SUA. Manufactura nos Estados Unidos. By J. A. Mendes. Pará, 1911. [Paper. 8vo, pp. 46.]

In this brief but comprehensive booklet, Señor J. A. Mendes has perpetuated two addresses delivered on March 25, 1911, at the "Theatro da Paz" at Pará. One was by himself and the other by Dr. Jacques Huber, director of the local "Museu Goeldi." In the former, after a general historical review of the history of Pará rubber cultivation, the subject of *Hevea* cultivation in the East was taken up, with special reference to the efforts of Mr. H. A. Wickham in that direction. Present conditions were then dealt with, in connection with some 70 views illustrating the cultivation of *Hevea* and other points relating to rubber production in the East, some of which are reproduced in this booklet.

An interesting feature of Señor Mendes' address was a description of the manufacture of rubber goods in the United States, in the course of which he described his visits to many of the leading factories in that branch of industry, his remarks being illustrated by views (as in the case of the earlier part of the address), showing various processes in operation. The series of views was appropriately closed by a portrait of Charles Goodyear, without whose invention of vulcanization (as Señor Mendes remarked) rubber could never have been used for the various purposes for which it is now applied.

In his address, supplementing that of Señor Mendes, Dr. Jacques Huber said:

"I take pleasure in here mentioning the name of Mr. H. C. Pearson, the well-known editor of THE INDIA RUBBER WORLD, who with the greatest courtesy offered the 'Museu Goeldi,' on the occasion of his visit to the Amazon last year, the greater part of the slides which have just been reproduced in your presence. With this valuable contribution Mr. Pearson gave the first instigation towards the realization of the objects of the Manaos Conference."

The B. F. Goodrich Co., Akron, Ohio, have issued a finely printed pamphlet of 32 pages descriptive of their wireless motor truck tires describing and illustrating the peculiar sectional shape of the tread of the tire, which they contend gives the tire greater shock-absorbing qualities than any other truck tire, and also describing fully the method of fastening the tire to the rim of the wheel. The booklet contains a great number of illustrations not only of the tire, but of various heavy trucks showing the tire in use. It will prove an interesting publication to all truck owners.

The Obituary Record.

ALBERT FISCHER.

ALBERT FISCHER, president of the St. Paul Rubber Co., St. Paul, Minnesota, and for many years widely and favorably known in the rubber footwear jobbing trade, died of apoplexy, in St. Paul, on December 12. He had been in poor health for a year, but was about the city as usual on the afternoon preceding his death.

ALBERT FISCHER.

He was born in St. Paul 50 years ago, attended the public schools until he was 18 years of age, when he entered the employ of Ranney & Hodgman, dealers in rubber goods. He became connected with the firm in 1889, and in 1895, when the company was reorganized and became the St. Paul Rubber Co., he was elected its president. He was prominent in public and business affairs, being a member of the Minnesota, Commercial and Town and Country clubs, the Junior Pioneers and Elks.

The funeral was held at the Cathedral December 14. Eight employes of the company acted as pallbearers. They were A. C. Kreiger, H. N. Hodgman, L. G. Schackford, D. McGrath, A. W. Smith, James Phillips, W. D. Fritz and F. T. Pfeiffer.

JOHN A. C. HAMILL.

John A. C. Hamill, well known as an expert in the rubber business, and at one time proprietor of a small rubber factory on Bristol Neck, in the town of Bristol, where the National India Rubber Co.'s plant is located, died at the home of his sisters, Lincoln avenue, that town, December 6. He was born in New York fifty years years ago.

Mr. Hamill went to Bristol with his parents when young, and was employed after leaving school at the factory of the National India Rubber Company. Clothing of rubber fabric was his specialty. About twenty years ago he accepted a position as superintendent of a rubber factory at Liverpool, England. After several years abroad he returned to Bristol, but later was superintendent of the Chicago Rubber Company's plant at Racine, Wisconsin.

Besides a widow, he is survived by two brothers, Michael Hamill, a government employe at Panama, and Dr. William H. T. Hamill, a physician at Phillipsdale, Rhode Island, and four sisters, Mrs. John J. Hughes, of Stamford, Connecticut; the Misses Katherine, Molly and Margaret Hamill, of Bristol.

The funeral was held December 9 at St. Mary's Church, Bristol, following services at his home.

Mr. Hamill's life was not without its romantic side, for during a brief period he was one of the most prominent baseball players in the country. Lyman Bean, of Fall River, discovered him playing amateur ball at and around Bristol, and in 1884 secured for him a position as pitcher for the Washington Nationals, of the Union Association. He was a star widely talked about during that season, but dropped out of sight at the end of the summer when his team disbanded. During one famous game at New York he was carried off the field on the shoulders of his fellow-players, and was later presented a testimonial which his widow still possesses.

DR. EUGEN DE HAEN.

CLOSELY following upon the celebration of the firm's golden jubilee comes the sad intelligence of the death, on November 16, of Dr. Eugen De Haen, founder of the well-known German chemical factory of E. de Haen, Seelze near Hannover. He had attained the age of 76, and by his careful and energetic management had achieved for his firm an international reputation, particularly in the rubber industry.

PAVING STONES AND RUBBER.

While dealers in the crude article have of late received many complaints of the substitution of stones for rubber, with the object of concealing false weights, it has been hitherto assumed that the fraud had been committeed either on board the vessel which carried the merchandise, or before the shipment had been made. It was reserved for a New York dealer to lately run a specific complaint to earth, with the result that the responsibility was placed upon the trucking firm which had carried the rubber from the steamship dock in South Brooklyn to the freight yard of the New York Central. Upon being unpacked, two paving stones, weighing 70 pounds, were discovered.

From the stones being undoubtedly Belgian paving blocks, which are not used in Pará, and from their similarity to those common at New York, suspicion was at once directed to the handling of the rubber here. Upon investigation it was found that the truck driver had been discharged, by reason of his not having been able to account for a delay of two hours on his trip. It was evidently during that time that the substitution had been made. The South American shipper was therefore exculpated.

PHENOMENAL PROSPERITY OF TIRE COMPANIES.

The season just closed has been by far the most prosperous in the history of the tire industry. One company alone, and this an independent company, is said to be producing at the rate of 750,000 tires a year. It is believed that the tire output for 1912 will amount to $140,000,000. This prosperity is reflected in the dividend returns of the different companies. The Boston News Bureau has the following to say on this phase of the matter:

"A glance at the financial 'log' of the tire companies reveals almost uniform prosperity. Both the Goodyear and Diamond companies have in the recent past distributed stock dividends of 100 per cent. each to stockholders, not to mention extra cash disbursements. The B. F. Goodrich Co. last year paid a 20 per cent. stock dividend, of $2,000,000 preferred stock, and it is believed that the company's shareholders are in line for another and similar division of profits before long. And it is quite generally accepted that the phenomenal earnings of its tire organization had a very close connection with the recent inauguration of common dividends by the United States Rubber Co."

News of the American Rubber Trade.

BOSTON BELTING CO.'S ANNUAL.

AT the recent annual meeting of the Boston Belting Co. the directors were re-elected: Thomas A. Forsyth, J. H. D. Smith, Lewis M. Crane, Charles H. Moseley, Francis H. Stevens, William H. Furber and George A. Miner. Thomas A. Forsyth was re-elected president; J. H. D. Smith, treasurer and clerk; and Thomas Lang, Jr., and Charles J. Upham, auditors. The balance sheet as of September 30, 1911—with comparative figures for the preceding year—is appended:

ASSETS.

	1910.	1911.
Real estate—land and buildings..	$324,711.85	$324,711.85
Machinery	348,089.94	268,578.25
Tools, furniture and fixtures.....		99,013.10
Cash	79,618.73	39,806.49
Bonds receivable	82,340.00	874,731.61
Notes receivable	841.72	
Investment account	613,000.00	
Account receivable	120,089.44	
Merchandise	983,002.08	878,673.48
Trade marks	7,917.15	100.00
Sundries.....		50.00
Total	$2,559,609.91	$2,485,664.78

LIABILITIES.

Capital	$1,000,000.00	$1,000,000.00
Reserve fund	800,000.00	800,000.00
Profit and loss	337,609.91	222,164.78
Notes payable	422,000.00	454,000.00
Unsettled bills	.....	9,500.00
Total	$2,559,609.91	$2,485,664.78

THE RUBBER CLUB DINNER.

The midwinter dinner of the Rubber Club of America will be held at the Waldorf-Astoria, New York, on the evening of January 12. The president of the club, F. C. Hood, will preside at the dinner and a large attendance is expected. The signal success of the first New York dinner, held a year ago, will naturally have the effect of bringing out a full number for the second dinner. The speakers have not yet been announced, but several speakers of national reputation have been invited and are expected to be present.

THE DAVOL SELLING MEN GET TOGETHER.

On December 18, 19 and 20 there was held at the factory office, Providence, Rhode Island, the annual gathering of the Davol Rubber Co.'s sales force.

Those attending, in addition to Charles J. Davol, the president and general manager, were P. Raymond Wesley, sales manager; Ed. J. George, of Pewankee, Wisconsin, western representative; O. Neidenstein, of Brooklyn, New York, representative in the metropolitan district; Raymond J. Fries, the eastern representative, who resides in New York, and J. A. Burgess, of Charleston, South Carolina, who covers the South Atlantic States. There were also two new members, one being Lewis G. Abbott, who recently resigned as sales manager of the Davidson Rubber Co., of Boston, with which he had been associated during a continuous period of twenty-six years. Mr. Abbott will be located in Boston and will cover the New England States. The other new member was E. G. Hartwell, of Detroit, Michigan, who will cover the Southern Central States formerly visited by H. H. McGee during his connection with the Davol company. The only absentee was George A. Sheehan, of San Francisco, who looks after the Davol interests on the Pacific Coast.

Shortly after January 1 offices will be opened for the display of Davol products in the cities of New York and Boston. These two new offices, with those now maintained in Chicago, San Francisco and Charleston, South Carolina, will enable each salesman to show to buyers in his territory a complete line of the druggist rubber sundries made at the Providence factory. Mr. Abbott will be at the Boston office, in the Old South building, and Mr. Fries will be at the New York office, in the Barclay building, corner Broadway and Duane street.

After two days devoted solely to matters of business, a day was pleasantly spent in social diversions, and in the evening the annual dinner occurred at the well-known Providence home of Joe Smith, famous all over that section of country for his broiled chicken and Johnny cakes. Mr. Neidenstein, at the close of the dinner, was moved to offer the following toast, appropriate to the occasion:

"Here's to you, old friend, may you live a thousand years,
Just to sort of cheer things in this vale of human tears;
And may I live a thousand, too—a thousand—less a day,
'Cause I wouldn't care to be on earth and hear you'd passed away."

At parting "Joe" presented the boys with a little souvenir as usual, and received the unanimous promise to visit him again next year after the general meeting ends.

RUBBER GOODS MANUFACTURING CO. DIVIDENDS.

A dividend of 3 per cent. was declared on the common stock of the Rubber Goods Manufacturing Co. December 6. This compares with 2 per cent. three months ago, 1 per cent. six months ago and 2 per cent. last March, making 8 per cent. for the year. The usual quarterly dividend of 1¾ per cent. was also declared on the preferred. In 1908 the company paid 4 per cent., and in 1909 and 1910 only 1 per cent. on its common stock. This year's dividend is consequently considerably the largest in the history of the company. Nearly all of this common stock is held by the United States Rubber Co.

RUBBER SECTION—AMERICAN CHEMICAL SOCIETY.

Mr. D. A. Cutler, of the Rubber Goods Manufacturing Co. (New York), has been appointed chairman of the rubber section of the American Chemical Society. This section held its annual meeting in Washington from December 27 to December 30. Many interesting papers were submitted, among them one on "Testing Methods of Rubber Contents in Raw and Vulcanized Rubber," by Dr. W. A. Ducca; "Commercial Compounds Used in Rubber," by S. P. Thatcher; and papers on the "Deresination of Crude Rubber," by Francis R. Peabody and Victor Henzlick.

A PROFITABLE YEAR FOR THE GOODYEAR TIRE CO.

A recent issue of the New York "Journal of Commerce" contains the following interesting paragraph regarding one of the large Akron companies:

"The Goodyear Tire & Rubber Co. has declared an annual dividend of 12 per cent. on its common stock, payable January 1 to holders of record on December 22. This is an increase of 5 per cent. over previous disbursements, which have been at the rate of 7 per cent. per annum. It is stated that the gross sales of the company this year were approximately $13,000,000, and next year's sales are expected to reach $20,000,000. It is claimed that the company earned slightly in excess of 50 per cent. on its $2,284,000 common stock during the year."

NEW INCORPORATIONS.

BATAVIA COMPANY of Pennsylvania, November 25, 1911, under the laws of New York; authorized capital, $30,000. Incorporators: Harry W. Newburger, 2 Rector street, New York; Maxwell Lustig, 2646 East 24th street, Sheepshead Bay, New York; D. Weiss, 52 Ravine avenue, Yonkers, New York. Location of principal office, Manhattan. To manufacture tires.

International Automobile League Tire & Rubber Co., August 1, 1910, under the laws of New York; authorized capital, $1,000,000. Incorporators: Alfred C. Bidwell, 234 Division street; Wm. Preiss, 160 Franklin street, and Chas. H. Bowe, 58 W. Genesee street—all of Buffalo, New York.. Location of principal office, Buffalo, New York.

London Rubber Coat Co., December 19, 1911, under the laws of New York; authorized capital, $2,000. Incorporators: Morris Miller, 1138 45th street, Brooklyn, New York; Jacob Miller and Isaac Karduner, both of 105 W. 137th street, New York. To manufacture auto coats, etc. Location of principal office, Manhattan.

The Mercantile Rubber Co., December 4, 1911, under the laws of New York; authorized capital, $3,500. Incorporators: Sidney Klausner, 741 East 5th street, New York; Joseph Cosin, 271 Union street, and Louis Cosinsky, 970 Court avenue, both of Brooklyn, New York. Location of principal office, Manhattan.

Miles Motor Tire Spring Co., November 9, 1911, under the laws of Delaware; authorized capital, $200,000. Incorporators: M. R. Myers, Huntingdon; Frederick B. Miles, Wilkinsburg, and Charles W. Dressler, Braddock, all of Pennsylvania.

B. F. Moffat Punctureless Tire Co., December 1, 1911, under the laws of Maine; authorized capital, $2,500,000. Incorporators: E. M. Leavitt and L. A. Burleigh, both of Augusta, Me. Location of principal office, Augusta, Maine. To manufacture resilient tires for automobiles, motor vehicles, etc.

National Rim Co., December 19, 1911, under the laws of New York; authorized capital, $150,000. Incorporators: Luke G. Fleming, Jost J. Hafner, both of 43 Wilde street, and Erdman N. Brandt, Washington street, all of Tarrytown, New York. To manufacture tires, rims, etc. Location of principal office, Manhattan.

National Rubber Co., December 5, 1911, under the laws of New York; authorized capital, $5,000. Incorporators: Max Durst, Henry Durst and Sarah Durst, all of 1525 Fulton avenue, New York. Location of principal office 88 Reade street, New York. To manufacture rubber clothing, drug and plumbers' sundries.

National Rubber Co., December 11, 1911, under the laws of New York; authorized capital, $5,000. Incorporators: Jacob Bernstein, 58 Essex street; Philip Friedman, 334 Grand street, and Abraham Samilson, 236 Madison street, all of New York. Location of principal office, Brooklyn, New York.

John E. Sias Co., November 29, 1911, under the laws of New York; authorized capital, $100,000. Incorporators: John E. Sias, A. R. Sias, and K. G. Sias, all of 2271 Church avenue, Brooklyn, New York. Location of principal office, Brooklyn, New York. To manufacture rubber, rubber cement, etc.

Simpson Fibre Tire Co., November 17, 1911, under the laws of Michigan; authorized capital, $100,000. Incorporators: Selden L. Simpson, James D. May and Harry J. Dingeman, all of Detroit, Michigan. To manufacture and sell at wholesale and retail fibre tires for vehicle wheels and the manufacture and sale of vehicle wheels.

The Troy Steam Vulcanizing Works, November 25, 1911, under the laws of New York; authorized capital, $5,000. Incorporators: Harry E. Titus, Josephine Titus and Geo. Taylor, all of Troy, New York. Location of principal office, 414 River street, Troy, New York. The company has been incorporated for the purpose of tire vulcanizing.

PERSONAL MENTION.

Richard C. Hall, of Chicago, has been appointed Chicago selling agent of the United States Rubber Co., in place of E. G. Stearns, who recently resigned that position, to take the selling management of the products of the Banner Rubber Co. Mr. Hall, while originally from Boston, has been in Chicago the greater part of his life, and has been for some years past president of the Duck Brand Co., of that city.

The directors of the Rubber Club of America met at the Lotos Club, New York, on December 6, to make arrangements for the holding of the annual midwinter dinner. F. C. Hood, president of the Hood Rubber Co., presided at the meeting, and among those present were H. E. Sawyer, E. S. Williams, E. H. Clapp, H. P. Fuller, F. H. Appleton, ex-Gov. A. O. Bourn, G. F. Mayo, F. D. Balderston, R. L. Rice, F. B. Dunbar and H. C. Pearson.

W. J. Mulvihill has resigned as superintendent of the Newark Rubber Manufacturing Co., Newark, New Jersey.

A. C. Leonard, who recently resigned as Pacific coast representative of the Goodyear Tire and Rubber Co., Akron, Ohio, is planning to enter the local tire field in San Francisco on his own account.

COMMODORE BENEDICT AND HIS AMAZON WIRELESS

COMMODORE E. C. BENEDICT, a director of the United States Rubber Co., and interested in the development of the Amazon country, especially in the promotion of wireless telegraphy between Pará and Manáos, sailed from New York on December 19 for a four months' cruise in southern waters. The party consisted of Colgate Hoyt, L. L. Benedict, Commodore Frank S. Hastings, Edward Beers, A. J. Hutter of Pará, and the commodore's daughter, Mrs. Clifford Harmon and some of her friends.

The itinerary of the trip as arranged before sailing, subject to later changes, provides for a straight journey to St. Thomas, to Barbados, to Pará, up the Amazon River to Manáos, and then back to Pará. From there the party expects to go to Rio de Janeiro, to Buenos Ayres, and thence by rail to Valparaiso. Here a considerable stop may be made, and then the party will return to Buenos Ayres and to Rio de Janeiro. After this it is possible that there may be a trip to the Madeira Islands, and also the Island of Sicily.

The "Alvina," chartered by the commodore for the trip, is 214 feet over all, 26 feet 10 inches beam, has twin screws, and was fitted specially for this trip in a particularly fine fashion with ample accommodations for the party which accompanies the commodore.

Some time ago the commodore obtained a license from the Brazilian Government to operate a wireless from Pará to Manáos, a distance of about one thousand miles. Recently word came that the Brazilians had revoked his license. The commodore went to Washington and had a talk with Secretary Knox, who promised to look into the matter and see that his rights were protected. The commodore was asked why his license had been revoked. He anwered, according to an interview in the New York Times:

"I don't know anything about it. How should I know why they have deprived me of it. The only reason that I can think of is that they want all of those privileges themselves." The same paper goes on to say:

"The commodore, after he had obtained his license, built the necessary stations. The frequency of his trips to the Amazon made the investment look good enough, for it could be used by all vessels fitted with the wireless apparatus. The sudden revocation of the license looked like a great injustice and every effort will be made to protect the commodore and permit him to use this equipment."

THE NEW JERSEY EMPLOYERS' LIABILITY LAW.

The Employers' Liability Law, recently passed in New Jersey, which is of such a sweeping character that the employer is made liable for injuries to the employe, under a great many conditions under which hitherto no such liability has legally existed, has recently been given a test in the court and its constitutionality sustained.

Relative to a verdict granting damages of $7.27 a week for 300 weeks to the widow and children of the first man killed since the law went into operation, Judge William P. Martin, in the Court of Common Pleas at Newark, New Jersey, on December 4, gave an opinion in which he sustained the constitutionality of the act on every point attacked. The verdict was in favor of Mrs. Lizzie A. Sexton, widow of Floyd Sexton, who was killed while in the employ of the Newark District Telephone Co., July 4 last, four hours after the new law went into effect.

TRADE NEWS NOTES.

WILLIAM R. THROPP & SONS CO., Trenton, New Jersey, manufacturers of rubber machinery, who recently equipped two rubber mills in Mexico for preparing crude rubber for export, are planning the erection of a large addition to their present works.

The Goodyear Tire and Rubber Co., Akron, Ohio, is constructing two new buildings, one 300 x 60 feet, five stories high, being an addition to the factory, and the other 120 x 50 feet, six stories high, being an addition to the general office. It is installing in its power plant one 3,000 h. p. cross compound engine and one 1,500 kw. turbine, together with several smaller pieces of machinery. The automobile tire capacity of the plant is being increased from 2,200 to 3,500 casings per day.

The Fear-Naught Tire and Rubber Co., Paterson, New Jersey, has purchased the Cardinal mill in that city, which was operated for many years by the Cardinal Silk Co. Some changes will be made before the rubber machinery is installed.

The B. F. Goodrich Co. will erect a three-story building and basement at 1925 and 1927 Michigan avenue, Chicago, Illinois.

The Diamond Rubber Co. is erecting a two-story brick building on the corner of Eleventh and Olive streets, Los Angeles, California.

The Firestone side-wire cushion tire for electric cars claims special merit for its easy riding qualities, first by giving a double or dual tread, and second, by adding internal cavities at frequent intervals in the base directly under the tread where the full cushion effect may be secured.

On January 1, 1912, the Firestone Tire and Rubber Co. opened a new branch office at 1521 Commerce street, Dallas, Texas. T. B. Talbot, who formerly traveled through Ohio for the Firestone, has charge of the Dallas office. This company will open a new branch at Indianapolis, Indiana; and new agencies have been opened at Springfield, Ohio, Tacoma, Washington, Des Moines, Iowa, and Dayton, Ohio, making 45 agencies in all.

The firm of A. T. Morse & Co., for many years well known in the rubber importing trade, was dissolved on December 31 last, and has been replaced by the new firm of Meyer & Brown, consisting of Otto Meyer, who was a partner in A. T. Morse & Co. for five years, and A. H. Brown, who was also connected with the same firm for four years. A. T. Morse will be interested in the new firm as a special partner. Business will be conducted in the offices occupied by A. T. Morse & Co., at 35 South William street, New York City, N. Y.

The Apsley Rubber Co., Hudson, Massachusetts, distributed to its friends and employes a Christmas card with Christmas greetings on one side and on the other an invitation to be present at the town hall in Hudson, on December 29, at a triple entertainment, the early part of the evening being devoted to "An Illustrated Trip Abroad," by Anthony W. Straus, which was followed by a collation at 9 p. m., which in turn was followed by a grand ball. It is not necessary to add that the invitation was accepted by all who were near enough to get there.

The Quaker City Rubber Co., Philadelphia, Pennsylvania, has sent out to its customers a pretty Christmas card printed on an imitation cross section of wood, which gives a very artistic effect.

The Converse Rubber Shoe Co., Malden, Massachusetts, in order to take care of its increasing business, has found it desirable to increase its capital; and accordingly the directors, at a meeting held December 1, voted to increase the company's capital from $400,000 to $600,000 by issuing 1,750 shares of 7 per cent. preferred stock and 250 shares of general capital stock, the latter being subscribed for by the officers of the company.

A first and final dividend of 1 per cent. has been declared in the settlement of the affairs of the M. Lindsay Rubber Manufacturing Co., which went into bankruptcy in Washington, District of Columbia, several years ago.

The B. & R. Rubber Company, of North Brookfield, Massachusetts, has declared a dividend of 2 per cent. on common stock and 1¾ per cent. on preferred stock, both payable January 1, 1912, to stock of record December 26.

The Canadian Consolidated Rubber Company, Ltd., has declared the regular quarterly dividends of 1¾ per cent. on its preferred stock and of 1 per cent. on its common stock, both payable January 2 to holders of record December 21.

The Walpole Rubber Company, Walpole, Massachusetts, has declared the usual quarterly dividend of 1¾ per cent. on preferred and 1 per cent. on common stock, payable January 15, to stock of record January 1.

CALENDARS RECEIVED.

J. H. Stedman & Co., Inc., dealers in scrap rubber, Boston, Massachusetts, have issued a handsome wall calendar, 14 by 22 inches, showing a pretty landscape, printed in a delicate shade of green, while below is a calendar pad, large size, with a page for each month. It is a convenient office calendar, as the figures are legible at a considerable distance.

George F. Lufbery, Jr., manufacturer of chemicals for the rubber trade, Elizabeth, New Jersey, has issued a wall calendar for office use in the form of a long hanger, about 13 inches wide and 32 inches long, having twelve leaves, each leaf giving three full months. As the type is large and plain, this calendar is serviceable for general use in any large office.

The United States Rubber Co. has distributed to its customers a handsome wall calendar of practically the same design as the calendar issued last year, which was very favorably commented on. The calendar is 12 by 18 inches, printed on heavy white cardboard, which in turn is mounted on a heavy green board. The design, which is decorative rather than pictorial and shows an arrangement of rubber leaves, is printed in gold and white and several shades of green. In constructing this calendar the main consideration was obviously to get quality rather than to escape expense.

The New Jersey Rubber Co., Lambertville, New Jersey, issues a useful desk calendar, devoting a leaf to each day in the year. Each leaf on its face not only gives the particular date in large type, legible across the office, but shows in addition three full months. The back of the page can be devoted to memoranda.

The American Rubber Manufacturing Co., San Francisco, California, has issued a very pretty calendar, intended for the home rather than for the office, which reproduces a painting by the New York artist, Philip Boileau, and printed in the four color process, entitled, "After the Opera." It shows a handsome young woman, evidently from her expression reminising on the evening she has just passed. From her general appearance and accoutrement it is obvious that she occupied the center box in the first tier.

TRADE NEWS NOTES.

It is reported that the retail shoe dealers in some of our smaller cities have got together and adopted a uniform selling price for rubber footwear, giving them an average profit of 40 per cent. If the people who are constantly discussing the increased cost of living run upon this item, they will have one more reason to add to those hitherto cited by way of explanation. Forty per cent. seems like rather a generous profit for the retailer. The manufacturer and wholesaler would very much like to join the 40 per cent. class.

The Monatiquot Rubber Works Co., South Braintree, Massachusetts, on Thanksgiving Day gave a turkey to each of the married men, cigars to the unmarried men, and candy to the girls. Now the question arises—which of the three was best pleased?

The financial writers in some of the daily papers, speaking of the future of the United States Rubber Co., remark that in four years' time the company expects to lay down crude rubber in New York for something like 20 cents per pound. When fine quality crude rubber is laid down in New York for 20 cents a pound, what will become of the valley of the Amazon, not a pound of whose rubber under anything like present conditions can be laid down in New York for twice 20 cents per pound?

The Michelin Tire Co., Milltown, New Jersey, is reported to have leased, for five years, the property at 1314 Huron road, Cleveland, Ohio.

The factory of the National India Rubber Co., Bristol, Rhode Island, still continues to run on very full time, with a present promise of a continuance of this condition for a good part of the winter.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has secured a permit for the erection of a two-story brick building in Pittsburgh, Pennsylvania.

The National Rubber Co., a Missouri corporation recently organized, contemplates the building of a factory at St. Louis, Missouri, for the manufacture of rubber paints and other rubber products, to be used in waterproofing aeroplanes, tents and in preserving tires.

The Standard Rubber and Cable Co., mentioned in the December number of THE INDIA RUBBER WORLD as manufacturing a preparation known as "Vulco," used in the repair of tires, is located at Bridgeport, Connecticut

The fire that occurred in the plant of the John A. Roebling's Sons Co., Trenton, New Jersey, on December 2, while it did considerable damage was confined entirely to the one shop in which flat wire is made, the other shops not being damaged. Arrangements were immediately made by which the facilities of the other parts of the plant could be employed in doing the work which had been done in the shop that was burned, so that there was very little interference with the filling of the company's orders.

William H. Scheel, No. 159 Maiden Lane, New York, importer of chemicals used in rubber compounding, announces that he has added to his line a fine grade of calcined magnesia, which can be delivered in packages to suit the convenience of the customer. This new line has been added for the reason that Mr. Scheel has received many calls for a high grade imported product, which notwithstanding the heavy duty levied on it can be sold at a reasonable price. He also carries carbonate magnesia in stock.

The Hood Rubber Co., Boston, Massachusetts, following its custom for some years past, has issued to its customers a set of "Memory Joggers," consisting of 12 little diaries, one for each month with a page for each day and a leather cover in which these little monthly booklets can be inserted. A pencil completes the outfit. The little book in the cover is only 3" x 5", so that it can be conveniently carried in the waistcoat pocket. The series is put up in a cardboard box where the diaries can be filed after they have been used.

PERSONAL MENTION.

The dailies recently had quite a little to say about young Lionel de Jersey Harvard, a member of the family from which came John Harvard, who founded Harvard University 275 years ago. He was recently matriculated in the institution founded by his distinguished relative, being the first student by that name ever connected with the college. His father, J. M. Harvard, is a prominent member of the rubber trade of London, having been connected for over 30 years with the Leyland and Birmingham Rubber Co., Limited, as manager of their London branch.

J. W. Buckley, of the J. W. Buckley Rubber Co., New York, has recently returned from a trip to Jamaica, British West Indies.

Senator Wetmore, of Rhode Island, whose last election to his seat was the occasion of a prolonged and memorable contest between him, Colonel Samuel P. Colt, president of the United States Rubber Co., and Robert H. I. Goddard, announces that he will not be a candidate for re-election.

H. J. Ackerman and Louis Brunt, who have been connected with the factory of the Firestone Tire and Rubber Co., Akron, Ohio, have recently become connected with the St. Louis branch of that company, Mr. Ackerman becoming the St. Louis salesman.

C. J. Butler, vice-president of the United States Tire Co., who has recently made quite an extended trip through Europe, has this to say on comparative factory equipment:

"European rubber manufacturers do things in a very thorough manner, but I fail to see wherein their methods excel ours in any important particular. In the matter of equipment our factories rank with theirs in every way, and in many instances we employ machinery to great advantage over their hand labor. And our output is many times greater than they can lay claim to."

Speaking of cars of the runabout type he says:

"There is only a limited market in European countries for small, medium priced cars. This is due to the fact that they have no prosperous middle-class as we have in this country. Practically all of the cars in use are of the large touring type, although several manufacturers have begun making and marketing small cars. I doubt, however, whether there ever will be a big demand for them."

C. M. Schelp and Conrad Budke, Jr., have recently become associated in the organization of the Schelp-Budke Tire and Rubber Co., in St. Louis. The company will handle the Swinehart tires for trucks, cars and carriages.

H. G. Fisk, secretary of the Fisk Rubber Co., Chicopee Falls, Massachusetts, has become a member of the Association of National Advertising Managers.

W. F. Bowers, president of the Bowers Rubber Works, San Francisco, California, spent a large part of the month of December visiting the Eastern trade, reaching his old home in Lynn, Massachusetts in time to pass Christmas with his mother, which has been his annual custom for some time.

G. C. Sterling has resigned his position with the Penn Rubber Co., and the Boston Tire & Rubber Co., both of Boston, Massachusetts, in whose interests he has for some years covered New England territory, and has associated himself with the Hub Cycle Co., of Boston, for which concern he will continue to travel over his former territory.

D. Lorne McGibbon, president of the Canadian Rubber Co., of Montreal, Limited, and a director of the United States Rubber Co., is also president of the La Rose Consolidated Mines Co., which recently declared the regular quarterly dividend of 2 per cent., payable January 20, 1912, to stockholders of record December 30, 1911. He says that a statement will be issued to the stockholders very soon outlining the policy of the management with regard to the disposal of the cash surplus shown on hand by the last statement.

UNITED STATES RUBBER CO. DEFERS PRICE ANNOUNCEMENT.

THE United States Rubber Co. has sent out a notice to the trade that it will announce its new prices on February 1 instead of on January 1, as has been its usual custom, at least for some years past. The announcement does not give any intimation as to whether the prices will be advanced or reduced. In view of the reduction in the price of crude rubber the past year it is generally assumed that there will be no advance. The trade is hoping for a reduction, but if one is made it is likely to be small.

TRADE NEWS NOTES.

The creditors of the Mansfield Rubber Co., Mansfield, Ohio, held a meeting on December 9, to prove their claims, examine the bankrupt, appoint a trustee and transact other business that came before the meeting.

The company has filed in the United States District Court a schedule showing over $191,000 of assets, with liabilities of over $189,000.

The Gustin-Bacon Manufacturing Co., Kansas City, Missouri, will hereafter do a general business in various makes of automobile tires, instead of confining themselves as hitherto to the product of a single factory.

The Fisk Rubber Co., of Chicopee Falls, Massachusetts, will soon open direct factory branches in Brooklyn, New York; Pittsburgh, Pennsylvania; Cincinnati, Ohio, and Butte, Montana, increasing the total number of direct factory branches to thirty-four.

The Diamond Rubber Co., Akron, Ohio, has seven branches in California, one in San Diego, Los Angeles, Fresno, Oakland, Sacramento, and two in San Francisco. It also has stores in Portland, Seattle, Spokane and Salt Lake City.

There seems to be some unhappy influence that affects the Malden, Massachusetts, fire department whenever its services are needed at the factory of the Converse Rubber Shoe Co. The disastrous fire of last February, which caused a damage of $200,000, will still be remembered. On December 7 there was a slight blaze in the shipping department of the factory and an alarm was rung in, but for some reason or other the numbers became mixed and the fire department hurried to a spot half a mile from the factory. By the time the error was corrected and the firemen had reached the rubber mill, the sprinkling system, assisted by a dozen workmen, had squelched the blaze with a small loss.

Among some interesting rubber information culled from a down east daily is this statement: "The rubber directors are now working on a plan to consolidate the Rubber Goods Manufacturing Co. with the United States Rubber Co., although there may be delay on account of the Rule of Reason in the Sherman law."

Inasmuch as this consolidation took effect nearly seven years ago, when the United States Rubber Co. purchased the control of the Rubber Goods Manufacturing Co., the delay on account of the Sherman law is not likely to be very serious.

The Intercontinental Rubber Co. declared, early in December, a dividend of 1¾ per cent. on its preferred stock, payable December 30 to stockholders of record on December 20.

People familiar with the motorcycle industry are estimating that over 40,000 of these machines will be built during the year 1912. With those already in use this will bring the number up to about 100,000. There are all told 32 companies, counting small as well as large companies, interested in the manufacture of motorcycles.

A new co-partnership—Arnold & Zeiss—has been formed under date of January 2, to carry on from that date the business of the late firm of Poel & Arnold, which expired by limitation on December 31, 1911.

Frank Poel, one of the general partners of the firm of Poel & Arnold, retires from active business. Messrs. Heilbut, Symons & Co., of London and Liverpool, have become special partners, and the capital heretofore employed by them in the firm of Poel & Arnold will hereafter be employed in the business of "Arnold & Zeiss."

The Hartford Rubber Works Co. has so many orders on hand that it is working now with three shifts of eight hours each.

At a meeting of the stockholders of the Batavia Rubber Co., held at its office in Batavia, New York, December 8, it was voted to increase the capital stock from $70,000 to $500,000. Directors elected were Charles R. Rogers and E. E. Carpenter, of New York City; George E. Perrin and Ashton W. Caney, of Batavia, and John W. Mullen, of Morganville. Officers elected were as follows: Vice-president, Ashton W. Caney; secretary and treasurer, George E. Perrin. The office of president was left vacant, as it is expected that the position will be filled by a prominent New York financier and business man.

Ground was broken on December 9 for the factory of the International Automobile League Tire & Rubber Co., at Buffalo, New York.

The Gillette Rubber Co., the present name of what was formerly called the Humane Rubber Horse Shoe Co., of Montgomery, New York, has purchased a commodious plant at Fishkill-on-the-Hudson, main building being 40 x 140 feet, three stories high, with two "L" extensions 75 feet long, one being 24 feet wide and the other 30 feet wide, and both three stories in height. The company is equipped for making horse hoof pads, rubber cushioned horse shoes, automobile repair stock, and automobile tire casings.

A Cleveland daily contains the following item in regard to the earnings of one of the great Akron plants: "Net earnings of the B. F. Goodrich Co. for the year, it is stated, will be more than $4,500,000, which is a half million over the entire par value of the company's preferred stock. In the thirty-one years of the company's existence it is stated that earnings every year have made gains over the previous year."

The plant of the Bourn Rubber Co., in Providence, was saved from what probably would have been a disastrous fire on December 4, by the perfect working of its sprinkler system and the fire-fighting brigade, made up of its employes. In the middle of the afternoon a "blow down" pipe, running between the boiler and the fire box of the engine burst. The pressure from the boiler blew the contents of the fire box out onto the floor of the engine room. In a second the room was in a blaze. The sprinkler system in the engine room, started by the rising temperature, began its work immediately and on the sounding of the automatic gong the fire brigade got to work, with the result that before the fire department had reached the plant the flames were extinguished.

N. B. Taylor, hitherto western district manager of the Goodyear Tire and Rubber Co., has succeeded A. C. Leonard as manager of the San Francisco branch.

The Goodyear Tire and Rubber Co. is erecting in Akron, Ohio, a fine office building, five stories high, which, it is asserted, when completed will be the largest office building in that city.

The new calender building of the Republic Rubber Co., Youngstown, Ohio, which will be one of the most complete calender departments in the United States, will be ready for operation in about a month.

The reclaiming mill of the Boston Woven Hose and Rubber Co., at Plymouth, Massachusetts, turned out a product for the last week in November of 166,000 pounds, which is the record output for that plant.

The Tyer Rubber Co., Andover, Massachusetts, has opened a coffee-room for the benefit of those employes who bring their lunches with them. Not only is hot coffee served with the lunches, but newspapers and periodicals are provided to help them utilize the noon hour in an agreeable and profitable way.

New Rubber Goods in the Market.

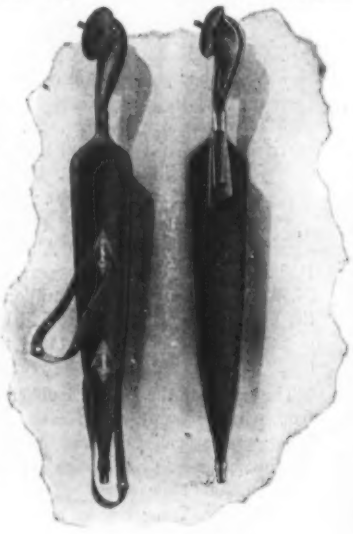
SOME GOODRICH DRUGGISTS' SUNDRIES.

THE accompanying cut shows one of the Goodrich aural syringes. They are of one-piece construction with sloping neck, and have a pure gum tip to ensure a soft non-irritating entry into the channel of the ear.

AURAL SYRINGE.

Physicians and surgeons are especially appreciative of articles of fine texture, perfect finish and exactly adapted to the purpose required. The most finicky among them would find it hard to criticize the dainty, yet useful article here shown, as the workmanship and design leave nothing to be desired.

This is also true concerning the second appliance. Generally pure-gum goods have a special attraction for those who know anything about rubber. They are costly, difficult to manufacture and to cure, but when perfect are the most attractive of all rubber goods. Pure gum is also for the purpose required in this article the only form of rubber that is really lasting. This urinal is made in a dozen different styles, the one in the illustration being known as No. 14 style, a male urinal suitable for either day or night use. The top is constructed in such a way as to lie naturally and comfortably against the body, and it is reinforced to insure retention of shape. It is equipped with inside double vent valve to prevent re-flow. [The B. F. Goodrich Co., Akron, Ohio.]



PURE GUM URINAL.

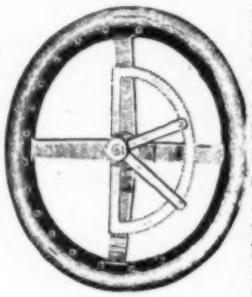
A PRACTICAL TIRE PROTECTOR.

A TIRE protector which really lengthens the life of the inner tube is now on the market. It is called "Casette" and is made of a specially prepared "gutta-percha" felt, pressed into tire form, the outer part being of the best rubber, and the inside lining of Sea Island cotton bear-back. The gutta-percha felt is 5/64 of an inch thick, but when the inner tube is inflated becomes less than one-half its original thickness. This protector, slipped in between the outer casing or shoe, and the inner tube, is entirely loose at the tread, being caught by cement on the head only. They are made to fit any tires, are very easy to adjust and can be transferred from one tire to another of the same size, of course, by loosening the cement with gasoline. [Goodfellow Tire Co., Detroit, Michigan.]

THE "CASETTE" TIRE PROTECTOR.

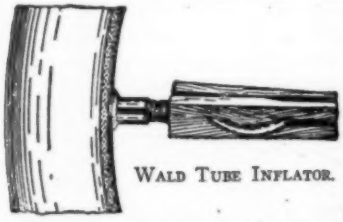
SOFT RUBBER STEERING WHEEL COVERS.

A much needed cover for automobile steering wheels was one made of rubber, and they are now being used on many wheels. This one in particular is made of a soft, pliable rubber, slides on over the wheel and is then laced into place until it fits smoothly. It prevents all slipping or chafing and protects the hands in winter from the extreme cold of the metal or wooden wheel. Although wheels finished in hard rubber are very handsome in appearance, they cannot be compared as to comfort with the soft rubber covering, for no matter how tightly the cover is fitted, a certain amount of air space is always between it and the wheel itself, forming a sort of a cushion for the hands to rest upon. [American Supply Co., New York.]



NEW TUBE DEFLATOR AND TIRE TOOL.

THE Wald Tube Deflator is a practical instrument for the motorist. It takes less than a minute to attach it to the valve of the tire. Its jaws are made of wood to prevent injuring the valve thread. Its grip is so tight that when the jaws are once closed it is an impossibility for them to jerk loose in any way.



WALD TUBE INFLATOR.

The same company manufactures a very simple but effective tool for repairing single-tube bicycle tire punctures, which is illustrated in the accompanying cut. The method of using this is as follows: After getting the size of the puncture, put rubber bands on the tool—one or two for small punctures, and three or four lor large punctures. Then dip the tool filled with rubber bands in rubber cement, insert in the puncture immediately; release the catch and withdraw the tool by turning it from side to side. After a few minutes the tire is again ready for use. [Wald Manufacturing Co., Sheboygan, Wisconsin.]

WALD BICYCLE TIRE REPAIR TOOL.

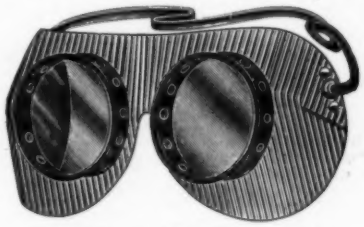
PENACLOTH FOR AEROPLANES.

THE Pennsylvania Rubber Co. has made quite a success of its fabric for covering aeroplanes, known as "Penacloth." It is rubber-proofed and colored yellow as a protector against the rays of the sun. This fabric is a trifle heavier than most of those now in use, but its strength is thus greatly increased. The manufacturers claim that a fabric of this strength helps to hold the structure together as much as the bracing wires do. A waterproofed fabric such as this protects the frame from dampness and does not stretch or shrink. It comes 40 inches in width. Its weight is not noticed appreciably, adding only about 7 pounds to the largest of machines. [The Pennsylvania Rubber Co., Jeannette, Pennsylvania.]

A BOOK for everybody interested in tires—"Rubber Tires and All About Them"—this office.

GOGGLES THAT DON'T GET HOT.

One drawback with a great many goggles that automobilists have to wear is that in the summer time they get so uncomfortably hot. Here are some goggles called "Non-Steam," which according to the contention of the makers, a contention backed by testimonials from users, are quite free from overheating of the



NON-STEAM RUBBER GOGGLES.

orbital space or steaming of the glasses. These goggles have been subjected to severe tests with the mercury ranging close to the century mark and have also been tried on threshing fields under dog-day conditions and have been pronounced very comfortable. [The Texas Co., Chicago, Illinois.]

FIREMEN'S WATERPROOF SUITS.

If there is any quality that firemen's clothes should possess, it is the quality of being waterproof. Here is an illustration of a suit of such a character consisting of coat and trousers. The suit is made of strong canvas duck in black, tan or white (white

THE GLOBE FIREMAN'S SUIT.

goods being worn mostly by the chief as a distinguishing uniform), and are lined with black or red firemen's felt or with grey plaid moleskin. Between the canvas and the lining is a waterproof interlining. While in the regular stock goods no rubber is used, in the special goods made on order, the duck is coated with rubber, making the garment doubly waterproof. The coat is double-breasted and has strap and buckle at throat and wrist to keep the water out; while the pockets have over-laps and snaps for the same purpose. [The Globe Manufacturing Co., Pittsfield, New Hampshire.]

A NON-SKID TIRE AND HOW IT IS MADE.

THE Goodyear Tire and Rubber Co. has a new non-skid tire that certainly looks different from any other, as it has a dark body and a white tread. The surface of the tread is covered with small diamond-shaped blocks, running lengthwise of the tire. The tread is made in this way: Seven layers of thin strips of rubber are laid one on another and the whole strip is then wrapped around a mould, put into a hydraulic press and subjected to such pressure that the rubber is forced into the diamond-shaped holes of the mould. Thus the tread is formed. It is then laid over a cement coated tire, wrapped very tightly, and the tire with this wrapping is then put into a vulcanizer where the union is made complete. [The Goodyear Tire and Rubber Co., Akron, Ohio.]

THE GOODYEAR NON-SKID TIRE.

CRAVENETTE CLOTH IN SHOE UPPERS.

CRAVENETTED cloth, although not a new material, is quite so in the make-up of footwear. It is now used for uppers in ankle and even low shoes. During the fall and winter they will be much worn, as the material protects the ankles and feet from dampness and cold. Cravenette cloth is easily kept clean, does not spot nor become shiny. It fits the foot perfectly and is in every way equal if not superior to the leather and cloth top shoes. It can be had in any of the much-worn colors now in vogue.

SHOE WITH CRAVENETTE UPPER.

The general cloth shoe, which has been quite fashionable for some time, is not worn quite as much now as it was a year ago, but this cravenette shoe, with its protective qualities, ought to become a permanent institution.

THESE cravenette shoes can hardly be expected to take the place of four-buckle gaiters or even arctics when there is deep snow on the ground, or to displace the storm slipper in hard driving rains, but in damp weather or in moderately gentle showers the cravenette will undoubtedly keep the feet from getting wet for a considerable length of time. [J. Einstein, New York.]

CRAVENETTE PUMP.

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED NOVEMBER 7, 1911.

No. 1,007,778. Automobile tire. De Forest L. Gates, Salamanca, N. Y.
1,007,874. Tire protector. D. N. Jones, Gaylord, Minn.
1,007,879. Massage instrument. D. Lee, Chicago Heights, Ill.
1,007,889. Tire. J. B. Price, Beaumont, Tex.
1,008,051. Tire. R. E. Olds, Lansing, Mich.
1,008,083. Vehicle wheel. A. B. Simpson, New York.
1,008,111. Resilient tire. C. W. Blake, Delaware City, Del.
1,008,116. Vehicle wheel and tire. M. Clark, Chicago, Ill.
1,008,117. Rubber swimming glove. J. W. Copeland and E. Hamilton, Wynne, Ark.
1,008,284. Wheel tire. D. Ronconi, Baltimore, Md.

Designs.

41,920. Ball. F. A. Cigol, Paterson, N. J.

Trade Marks.

53,056. J. Walker & Co., London, S. E., England. The word *Lion* with illustration of same. For belting, hose, etc.
55,007. Pahl'sche Gummi-und Asbest-Gesellschaft mit Beschränkter Haftung, Dusseldorf-Rath, Germany. The word *Polypyrit* with illustration. For rubber and asbestos jointing material, etc.

ISSUED NOVEMBER 14, 1911.

1,008,430. Tire tool. C. Owen, W. W. Heckethorn, and S. W. Cole, Lamar, Col.
1,008,573. Fastening for demountable rims. C. R. Twitchell, Los Angeles, Cal.
1,008,604. Hand protector. G. Lake, Cleveland, Ohio.
1,008,607. Machine for converting latex into sheets of crude rubber. F. E. Mellinger and H. H. Markley, Lumija, Mexico.
1,008,641. Toy balloon. T. M. Gregory, Akron, Ohio.
1,008,646. Apparatus for inflating the tires of vehicle wheels. F. Kassner, Frauenwaldau, Germany.
1,008,680. Combined tire support and tool case. J. C. Temple, Whitefield, N. H.
1,008,688. Tire. J. M. Benham and G. W. Slater, Oakland, Cal.
1,008,772. Pneumatic tire. W. E. Andrew, Atlantic Highlands, N. J.
1,008,815. Surgical apparatus for drying wounds or the like. H. A. W. Grube, Hamburg, Germany.
1,008,819. Resilient tire. J. Hart, Bridgeport, Conn., assignor of one-fifth to H. L. Lewis, Stratford, Conn.
1,008,909. Hose clamp. J. J. Higgins, Thomas, W. Va.
1,008,993. Machine for reeling rubber-covered electric wire for vulcanization. T. J. Seward, assignor to The Electric Cable Co.—both of Bridgeport, Conn.
1,009,002. Rubber-joint-making instrument. W. H. Welch, assignor to Harvey Frost & Co., Ltd.—both of London, England.

Trade Marks.

58,597. Boston Gore and Web Mfg. Co., Boston, Mass. The autograph signature of A. Hopkins. For elastic webbing.

ISSUED NOVEMBER 21, 1911.

1,009,051. Tire protector. G. C. Cross, Chattanooga, Tenn.
1,009,062. Wheel. F. A. Frommann, St. Louis, Mo.
1,009,088. Automobile wheel. C. S. Myers, Columbia, Pa.
1,009,092. Tire armor. M. Pelz, New York.
1,009,103. Demountable rim and tire. R. P. Scott, Cadiz, Ohio.
1,009,191. Antislipping stud. T. Sloper, Devizes, England.
1,009,192. Manufacture of articles built up from lengths of cord. T. Sloper, Devizes, England.
1,009,264. Conveyor belt. W. W. Spadone, assignor to Gutta Percha & Rubber Mfg. Co.—both of New York.
1,009,284. Automobile tire. F. M. Crispin, assignor of one-half to J. W. Hamer—both of Beverly, N. J.
1,009,347. Vehicle wheel rim. E. C. Shaw, Akron, Ohio.
1,009,368. Antislipping and antiskidding attachment for tires. C. B. Woodworth, Niagara Falls, N. Y.
1,009,382. Automobile tire pump. G. A. Collison, Burlington, Vt.
1,009,423. Auxiliary rim for vehicle wheels. A. Latimer, London, England.
1,009,445. Vehicle wheel rim. E. D. Shaw, Akron, Ohio.
1,009,504. Apparatus for treating rubber compounds and the like. X. Gosselin, assignor to Millwall Rubber Co., Ltd.—both of Harpenden, England.
1,009,529. Vehicle wheel rim. E. H. Koken, Akron, Ohio.
1,009,591. Tire holder. N. P. Sjoholm, St. Louis, Mo.

Trade Marks.

53,501. G. G. Schick, Bronxville, N. Y. The word *Hudsonil*. For valves, etc.
58,065. New York Belting & Packing Co., Ltd., New York. The word *Firo*. For machinery packing, etc.

ISSUED NOVEMBER 28, 1911.

1,009,720. Vehicle wheel. J. Bustanoby, New York.
1,009,765. Machine for manufacturing pneumatic tires. A. Mathern, Berlin, Germany.
1,009,781. Tire tool. P. J. Nolan, Chester, Pa.
1,009,966. Pneumatic tire. J. W. Haase and E. H. Haase, Amherst, Neb.
1,010,014. Emergency tire for automobile wheels, etc. W. Budesheim and J. D. Stinchcomb, Baltimore, Md., assignors to W. F. Beasley, Plymouth, N. C.
1,010,031. Elastic hub wheel. C. Feroci, Rome, Italy.
1,010,061. Puncture-proof tire. W. W. Lower, Tyrone, Pa.
1,010,137. Vehicle tire and rim. J. E. Hale, assignor to The Goodyear Tire & Rubber Co.—both of Akron, Ohio.
1,010,187. Boot and shoe. C. D. Scott, Kinston, N. C.
1,010,230. Tire for the wheels of automobiles and other vehicles.
1,010,234. Automobile tire. T. Christopherson, East Helena, Mont.
1,010,236. Hose coupling. J. J. Cochran, San Francisco, Cal.
1,010,258. Combined sectional tire and wheel rim. F. M. Henry, New York.
1,010,309. Unsinkable boat. J. Pastorel, Asbury Park, N. J.
1,010,380. Overshoe for horses. G. N. Kinnell, Pittsfield, Mass.
1,010,381. Overshoe support for horses. G. N. Kinnell, Pittsfield, Mass.
1,010,382. Non-slip or protective appliance for the hoofs of animals. G. N. Kinnell, Pittsfield, Mass.
1,010,383. Overshoe and tread surface therefor. G. N. Kinnell, Pittsfield, Mass.
1,010,384. Overshoe. G. N. Kinnell, Pittsfield, Mass.
1,010,385. Emergency overshoe and link therefor. G. N. Kinnell, Pittsfield, Mass.
1,010,386. Overshoe. G. N. Kinnell, Pittsfield, Mass.
1,010,387. Overshoe. G. N. Kinnell, Pittsfield, Mass.

Trade Mark.

59,172. H. C. Freshour, Bridgeport, Conn. The words *The Star*. For rubber buckets.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 1, 1911.]

16,353 (1910). Leather substitute impregnated with rubber and tar. E. Lapisse, Arcueil, Seine, France.
16,407 (1910). Extracting rubber from plants. R. Bridge, Castleton, Lancashire.
16,448 (1910). Improvement in breast pumps. E. Bamforth, Jeppestown, Transvaal.
16,456 (1910). Purification of vulcanized india-rubber. P. J. Leemans, Vieux-Turnhout-lez-Turnhout, Belgium.
*16,544 (1910). Heels with alternate layers of hard and soft rubber. S. Havens, Oakland, Cal., U. S. A.
16,561 (1910). Repairing piece for rubber footwear. C. Maher, 49 Drolet street, Montreal, Canada.
16,612 (1910). Rubber sponge lining for harness. W. Vogelbein, 61 Richlerstrasse, Cöln-on-Rhine, Germany.
16,629 (1910). Rubber bands or tubes for bobbins of artificial silk. R. Pawlikowski, Görlitz, Germany.
16,758 (1910). Rubber substitute made by interaction of wood oil and resin oil. A. R. Van Der Burg, Schiedam, Holland.
16,853 (1910). Grooved rollers for mangling machines. J. Rawlins, 34 West Gate, Chichester.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 8, 1911.]

16,901 (1910). Pneumatic cushioning devices. L. Harris, 169 New Bond street, London.
16,910 (1910). Rubber tires for perambulators, etc. E. C. R. Marks, 57 Lincoln's Inn Fields, London.
16,996 (1910). Portable cases with rubber sides. B. Huberman, 13 Neustiftstrasse, Vienna.
17,066 (1910). Protection of rubber sleeves of valves. E. C. Austin, Wanganui, New Zealand.
17,119 (1910). Repairing of pneumatic tires. E. L. Barry, 357 North End road, Fulham, London.
*17,159 (1910). Warning rubber strips on poison bottles. C. Van C. Gear, 11 Jones street, San Francisco, Cal., U. S. A.
17,213 (1910). Use of rubber cement in compartments of buoyant apparel. J. Berman, Lower Broughton, and A. Berman, Cheetham—both in Lancashire.
17,251 (1910). Rubber blocks in tires. F. Schiller, 612 Belcredistrasse, Prague, Austria.
17,258 (1910). Elastic insertions for various articles. H. Iles and A. Goldsmith, Kingswood, Bristol.

GREAT BRITAIN AND IRELAND.

17,392 (1910). Resilient substance for golf balls, etc. W. Barbour, 3 Edelweiss Terrace, Partickhill, Glasgow.

17,427 (1910). Coating surfaces with rubber solution. F. W. Golby, 36 Chancery Lane, and H. C. Ahrlé, 45 Drayton Park, Highbury—both in London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 15, 1911.]

17,506 (1910). Rubber as a protective substance for propeller shafts. Continental Tire & Rubber Co., London, and M. Willenius, Weggis, Lucerne, Switzerland.

17,539 (1910). Coating of rubber solution for solidified wood pulp. J. L. Clark, 255 Cromwell road, South Kensington, London.

17,596 (1910). Waterproofing hides and leather with pulverized old vulcanized rubber. F. G. Browne, Murrumbeena, Victoria, Australia.

17,644 (1910). Portable breathing apparatus for miners, etc. H. A. Fleuss, Thatcham, Berkshire, and R. H. Davis, 187 Westminster Bridge road, London.

17,645 (1910). Reforming waste rubber. W. A. Allsebrook, and P. A. Doherty—both in Burton-on-Trent.

17,734 (1910). Preparation of artificial rubber from isoprene. Farbenfabriken vorm. F. Bayer & Co., Elberfeld, Germany.

17,857 (1910). Use of rubber in plugs of tread bands. G. Schulainere, H. Senal and U. Toulouse, 9 Avenue de Saint-Ouen, Paris.

17,924 (1910). Rubber strips in tire foundations. R. I. Rose, Brunswick street, Liverpool, and A. Rae, 17 Northbrook road, Seacombe, Cheshire.

17,941 (1910). Use of impregnated strips of coir in tires. Coir Tire Co. and G. D. Rose, Northern Assurance Bldgs., Manchester.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 22, 1911.]

18,056 (1910). Use of rubber as filling for wire balloon fabric. W. H. von Mach, Zoppot, Germany.

18,077 (1910). Elastic fastenings for wearing apparel. A. Kingston, Wellingborough.

18,085 (1910). Use of rubber in toy building blocks. C. Skaife, Fairfield, and F. Sugg, Ltd., 12 Lord street—both in Liverpool.

18,172 (1910). Use of rubber suction pads in bobbins. B. E. Edwards, Thornton Heath, Surrey.

18,174 (1910). Improvements in molding india-rubber. T. Gare, New Brighton, Cheshire.

18,184 (1910). Hard rubber small printing cylinders. E. Mertens, Freiburg, Breisgau, Germany.

18,214 (1910). Improvement in latex cups. W. A. Bailey, 148 Audrey House, Ely Place, London.

18,352 (1910). Tire jackets and covers with continuous layers. G. D. Whiteman, 18 Tirlemont road, South Croydon, Surrey.

*18,353 (1910). Non-skid bands for tires. H. A. Gamble, 2559 Harrison street, San Francisco, Cal., U. S. A.

18,375 (1910). Improvements in extracting and washing rubber. R. Haddan, 31 Bedford street, London.

18,398 (1910). Prevention of oxidation of accumulator plates. Accumulateurs Tudor Soc. Anon., Brussels.

18,418 (1910). Improvements in tread bands. J. G. A. Kitchen, Scotforth, and I. H. Storey, Ambleside.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, NOVEMBER 29, 1911.]

18,592 (1910). Rubber discs in vehicle wheels. A. F. Spencer, Margate.

18,619 (1910). Use of rubber blocks in making dental plates. R. Lamb, 51a Rodney street, Liverpool.

18,620 (1910). Use of rubbered fabrics in wheel cushions. W. S. Boult, 32 North Side, Wadsworth Common, London.

18,647 (1910). Rubber base for foot rests. D. C. Hannah, Alexandra Parade, Dennistoun, Glasgow.

*18,668 (1910). Embossing of rubber sheets. V. Chartener, 47 Allen street, Pittsburgh, Pa., U. S. A.

18,692 (1910). Surgical suspensory appliances. S. P. Musson, Thornton Heath, Surrey.

18,714 (1910). Rubber tired friction wheel for gramophones. C. W. Tibbits, 60 Castle street, and W. J. Turner, 26 Jasmine street—both in Liverpool.

18,855 (1910). Inflatable bags of canvas and rubber for raising ships. E. Burdfield, 15 Cumberland road, Plaistow, Essex, and A. Fenwick, 241 Cleveland road, Sunderland.

18,973 (1910). Pneumatic massage appliance. J. Heywood, 169 Union street, Oldham, Lancashire.

18,978 (1910). Improvements in manufacture of golf balls. J. P. Cochrane, Murano Works, Edinburgh.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

428,634 (April 18, 1911). Société Russo-francaise. "Prowodnik" rubber sponge.

428,861 (April 24). R. Rankin. Treatment of latex from rubber trees and similar vegetation.

428,868 (April 24). J. Hamilton. Compositions with resinous bases and methods for their production.

428,878 (April 24). Continental Caoutchouc and Gutta Percha Co. Balloon fabric and process of manufacture.

428,886 (April 25). J. Kaufmann. Process for metallic incrustations in masses of celluloid, hard rubber, etc.

429,030 (April 28). C. Caille. Pneumatic tires for vehicles.

429,016 (April 28). L. Garnier. Elastic tires for vehicles.

429,057 (March 20). De Caritat & Peruzzis. Portable automatic vulcanizer for repairing tires.

429,108 (April 29). J. G. A. Kitchen and T. H. Storey. Homogeneous repairing of rubber tires.

429,138 (April 29). O. Walter. Method and apparatus for vulcanizing special rubber surfaces.

429,219 (May 2). E. F. Dregon and F. E. Pfister. Pneumatic tire.

429,179 (May 1). Compagnie Générale d' extraction de Caoutchouc. Mechanical dry extraction of rubber.

429,262 (May 4). L. Jachiet. Rubber preserver for ankles of pants.

429,347 (April 3). O. R. Van Vechten and F. J. Grace. Braiding machine for tubular fabrics.

429,327 (March 27). H. Gundlach. Cover for vehicle wheels.

429,444 (May 6). R. Latour and Cappelle. Machine for making cords with rubbered fibers.

THE GERMAN EMPIRE.

PATENTS ISSUED (with Dates of Validity).

241,056 (from July 17, 1907). E. Rouxeville, Paris. Process for making a substitute for rubber.

241,348 (from May 23, 1911). Jacob Petry, Pittsburgh, U. S. A. Suction plate for artificial teeth.

241,330 (from November 4, 1910). Dr. Kurt Lossen, Frankfurt a. M. Foot bandage.

241,457 (from June 8, 1910). Julius Kehrer, Berne, Switzerland. Appliance for fitting rubber discs on porcelain bottle stoppers.

241,298 (from February 26, 1911). Gebrüder Häberer, Rodewisch i. V. Balloon material of rubbered fibrous fabric.

241,616 (from April 21, 1909). Oswald Silberrad, Buckhurst Hill, England. Dressing of leather by incorporation of rubber in its pores.

241,549 (from April 27, 1911). Weintraud & Co., G. m. b. H., Offenbach a. M. Fastening of antiskid covers to tires.

241,550 (from August 6, 1909). Frederick Elijah Blaisdell, Hammersmith, England. Elastic tire with rubber bands wound round an inner core.

241,735 (from April 15, 1910). Robert John Caldwell, Southampton, England; Fritz Pfleumer and Pneumatic Syndicate, Limited, London. Appliance for production by stirring of an elastic cellular substance.

241,650 (from November 25, 1910). Rodolphe Retzer and Adolphe Wilhelm Bernhardt, Paris. Toy aeroplane with rubber motor.

241,775 (from August 26, 1910). Haessler & Völcker, Madgeburg. Preparation of vulcanized fiber for treatment with leather polish.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending December 23:

COMMON STOCK, $25,000,000.

[The treasury of a subsidiary company holds $1,334,000.]

Last Dividend, October 31, 1911—1%.

Week December 2	Sales 3,700 shares	High 47⅛	Low 45⅝
Week December 9	Sales 3,700 shares	High 46¼	Low 45¾
Week December 16	Sales 11,210 shares	High 48½	Low 46⅛
Week December 23	Sales 5,000 shares	High 48⅜	Low 47½

For the year—High, 48½, December 16; Low, 30½, September 25.
Last year—High, 52½; Low, 27.

FIRST PREFERRED STOCK, $39,824,400.

Last Dividend, October 31, 1911—2%.

Week December 2	Sales 475 shares	High 109⅜	Low 109
Week December 9	Sales 1,200 shares	High 109⅜	Low 109
Week December 16	Sales 1,300 shares	High 110¾	Low 109
Week December 23	Sales 700 shares	High 110½	Low 110

For the year—High, 115½, July 7; Low, 104, September 25.
Last year—High, 116½; Low, 99.

SECOND PREFERRED STOCK, $9,965,000.

Last Dividend, October 31, 1911—1½%.

Week December 2	Sales 100 shares	High 75½	Low 75½
Week December 9	Sales — shares	High ——	Low ——
Week December 16	Sales 400 shares	High 76	Low 75⅛
Week December 23	Sales — shares	High ——	Low ——

For the year—High, 79, March 1; Low, 66, September 26.
Last year—High, 84; Low, 59½.

SIX PER CENT. TRUST GOLD BONDS, $19,000,000.

Outstanding of the 1908 issue of $20,000,000.

Week December 2	Sales 28 shares	High 104⅛	Low 104
Week December 9	Sales 23 shares	High 104⅛	Low 104
Week December 16	Sales 35 shares	High 104½	Low 104
Week December 23	Sales 25 shares	High 104⅜	Low 104

For the year—High, 105, July 15; Low, 101¼, September 30.
Last year—High, 106; Low, 102¼.

THE FEDERAL'S FINE REMODELED PLANT.

THE Federal Rubber Manufacturing Co., with very strong accent on the *manufacturing* to distinguish it from the former company, which was the Federal Rubber Co., is ready now to put its fine new, greatly enlarged plant into full operation. This is considered one of the best in the country. It is situated on an ample tract of land at Cudahy, Wisconsin, a suburb of Milwaukee, on the main line of the Chicago and Northwestern Railroad.

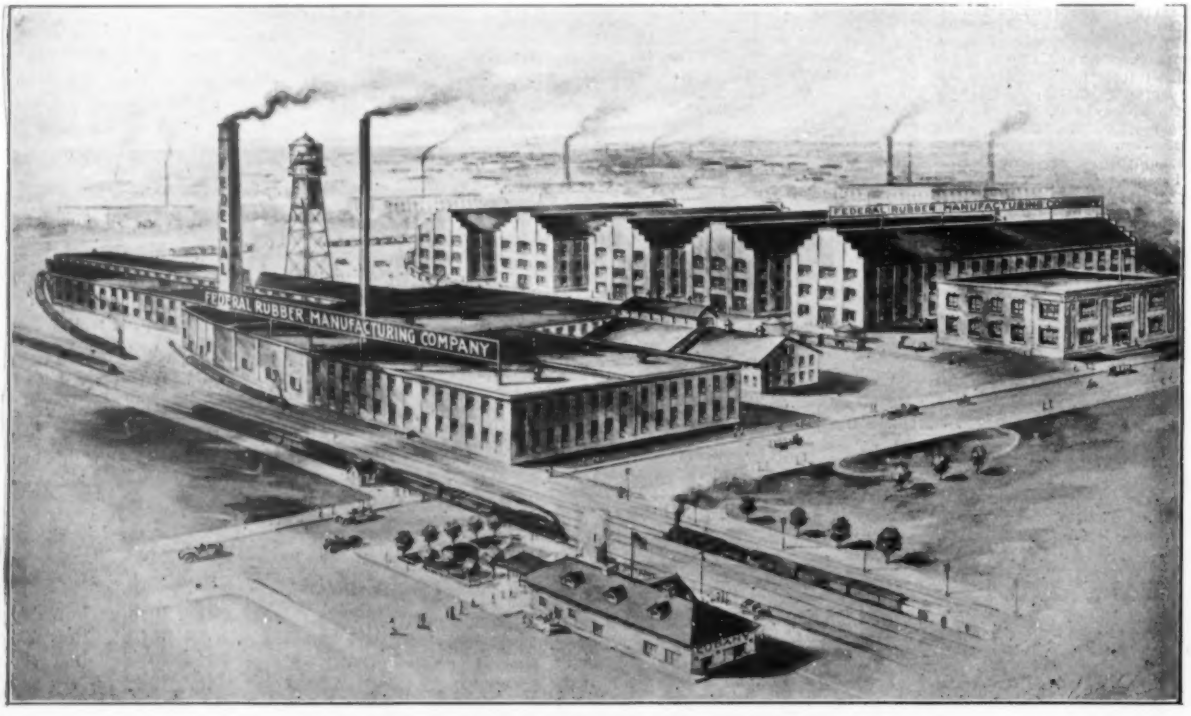
Among the new buildings erected is an administration building constructed of concrete and pressed brick, simple, but at the same time handsome in design, finished inside in quartered oak

BYRON C. DOWSE.
[President.]

HERBERT A. GITHENS.
[Vice-President.]

RICHARD WARD.
[Secretary-Treasurer.]

plant includes the old factory of the Federal Rubber Co., to which many new buildings have been added. Two hundred thousand dollars have been spent in making these additions and improvements, and the plant now consists of 26 different buildings, and and equipped with all modern improvements, including a dining-room for employes. Every department has been put on a thoroughly modern basis. The tire department, occupying two buildings, contains a complete equipment of tire-building ma-



FEDERAL RUBBER MANUFACTURING CO., CUDAHY, WISCONSIN.

chinery, vulcanizing presses, motorcycle and bicycle tire molds, and has a total capacity of about 1,000,000 automobile and other tires per year. The company has its own reclaiming plant, to which an entire building is devoted.

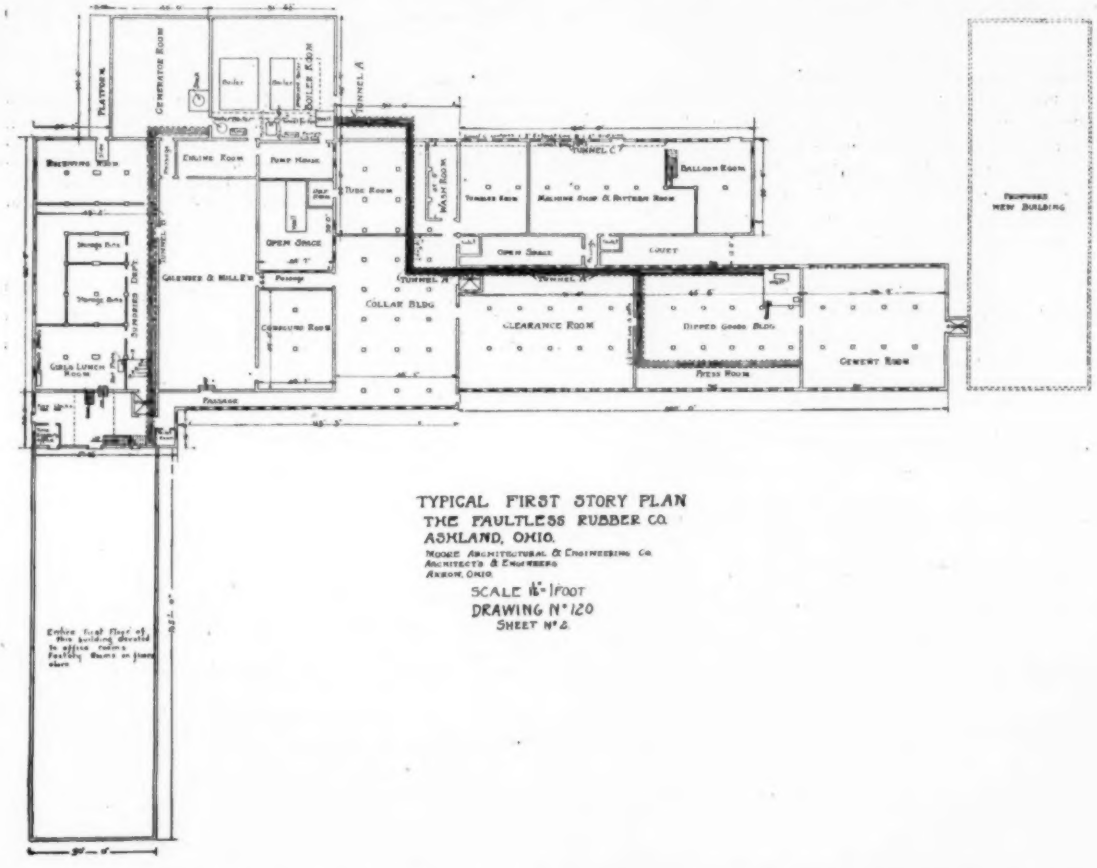
In addition to automobile, motorcycle and bicycle tires, the Federal Company's line includes solid truck, vehicle and baby cab tires, motor accessories, rubber horseshoe pads, rubber heels and mechanical rubber goods of all descriptions, including matting, packing, moulded goods and plumbers' supplies.

The officials of the Federal company are well known to the rubber and automobile trade. Byron C. Dowse, formerly president of the G & J Tire Co., of Indianapolis, is its president; Herbert A. Githens, vice-president and sales manager, formerly held the same position with the G & J company, and Richard Ward, secretary-treasurer, formerly served the G & J company in that capacity. The good-will enjoyed by these gentlemen in their former connections, and their wide acquaintance in the automobile, motorcycle and bicycle tire market, have already brought to the Federal company a large volume of business.

basement used for storage purposes. The first floor is occupied by the offices and the shipping department. The second floor includes the hand-made department, dining room, hospital room, girls' rest room, and packing room, and the third floor comprises the paper box department, stock and storage room for finished merchandise.

The power building is 50 x 100, one story high. When present improvements are completed the power will be electricity generated by gas engines, the gas for which, as well as for the boilers, comes from the company's local wells. The mill and calender room occupies a building 50 x 100, one story high, and the compound and dry rooms a building 50 x 50, three stories high. In the two wings, one 50 x 250 and three stories high, the other 50 x 125 and two stories high, are the tubing department, press goods department, machine and carpenter shop, vulcanizers, vapor and acid cure rooms and finishing rooms for dipped goods.

The new dipped goods plant is 85 x 155, one story and basement. A feature of this building is that it is divided into five



THE PLANT OF THE FAULTLESS RUBBER CO.

THE Faultless Rubber Co., Ashland, Ohio, has one of the most modern and completely appointed plants for the manufacture of rubber sundries and specialties to be found anywhere. It has an extensive group of buildings as is shown by the reproduction of the ground plan given below, and its floor space is in excess of 150,000 square feet.

The buildings are of brick and concrete construction, the main building being 50 x 300 and three stories high, with a fireproof compartments, has no windows in the side walls, and is lighted by means of a saw-tooth roof. The air in each of the five departments is continually changing and is automatically regulated as to temperature and humidity.

The company's product embraces hand-made, molded and dipped water bottles, syringes, gloves, nipples, cots and miscellaneous sundries, a general line of surgical rubber goods, bath caps, sponge bags, soap trays, brushes and a general line of toilet goods, a line of novelty goods, including decorated, gas, and air balloons, tubing, rubber cements, rubber sponges, and sponge products of all descriptions.

Review of the Crude Rubber Market.

ILLUSTRATING the effects of the quiet demand to be looked for in the closing months of the year, the London price of Upriver fine has again fluctuated between narrow limits of variation: the average having been for November 4s. 3½d., and for December 4s. 4½d. The lowest and highest points touched within the last two months have been 4s. 3d., and 4s. 5½d.; the closing figure being 4s. 4d.

The attitude of buyers has reflected doubts as to whether consumption is in a position to absorb the expected supplies from the Far East, even after a scaling down of the original estimates. One satisfactory feature has tended to impart stability to the European markets, viz., that the operation of manufacturing plants is on a larger scale—or so it is reported—than is usually the case at this period of the year.

Another point which has received consideration, is that the many new uses of rubber encouraged by the low prices lately ruling, are beginning to absorb much of the increased Asiatic production.

The American market has displayed a conservative policy on the part of buyers, similar to that witnessed in Europe.

A somewhat unlooked for feature of the European market was an advance at the Antwerp auctions of December 15, which encouraged the belief that the buyers were willing to take risks in preference to further delaying operations. The improvement recorded at the Havre sales of Congo rubber on December 19, failed to stimulate London operations, the advance being attributed to special demands. Very good prices were realized at the Amsterdam sales of December 15.

The London sales of December 20 showed a decline of 2d. to 3d. in plantation rubber, while the unsold third of the quantity offered was subsequently placed at a slight further decline on the prices established the preceding week.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and December 30—the current date.

PARA	Jan. 1, '11.	Dec. 1, '11.	Dec. 30, '11.
Islands, fine, new	118@119	93@ 94	96@ 97
Islands, fine, old	122@123	96@ 97	98@ 99
Upriver, fine, new	137@138	103@104	104@105
Upriver, fine, old	140@141	107@108	108@109
Islands, coarse, new	70@ 71	58@ 59	62@ 63
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	100@101	89@ 90	89@ 90
Upriver, coarse, old	104@105	none here	none here
Cametá	72@ 73	60@ 61	63@ 64
Caucho (Peruvian) ball	99@100	89@ 90	88@ 89
Caucho (Peruvian) sheet	none here	none here	none here
PLANTATION PARA.			
Fine smoked sheet	156@157	117@118	115@116
Fine pale crepe	143@144	118@119	119@120
Fine sheets and biscuits	138@139	113@114	115@116
CENTRALS.			
Esmeralda, sausage	94@ 95	83@ 84	86@ 87
Guayaquil, strip	none here	none here	none here
Nicaragua, scrap	89@ 90	82@ 83	83@ 84
Panama	none here	none here	none here
Mexican, scrap	88@ 89	81@ 82	84@ 85
Mexican, slab	56@ 57	none here	53@ 54
Mangabeira, sheet	75@ 76	62@ 63	62@ 63
Guayule	65@ 66	47@ 48	53@ 54
Balata, sheet	74@ 75	86@ 87	81@ 82
Balata, block	52@ 53	55@ 56	53@ 54
AFRICAN.			
Lopori ball, prime	120@121	101@102	101@102
Lopori strip, prime	none here	none here	none here
Aruwimi	104@105	100@101	100@101
Upper Congo ball, red	108@109	96@ 97	none here
Ikelemba	none here	none here	none here
Sierra Leone, 1st quality	119@120	84@ 85	89@ 90
Massai, red	119@120	85@ 86	90@ 91
Soudan, Niggers	105@106	81@ 82	none here
Cameroon ball	65@ 66	63@ 64	62@ 63
Benguela	82@ 83	62@ 64	64@ 65
Madagascar, pinky	none here	75@ 76	none here
Accra, flake	44@ 45	27@ 28	26@ 27
EAST INDIAN.			
Assam	93@ 94	none here	none here
Pontianak	6@6¼	5⅝	none here
Borneo	none here	none here	none here

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	4$400	Exchange	16 9-32*d.*
Islands, coarse	2$500	Exchange	16 9-32*d.*

Latest Manáos advices:

Upriver, fine	5$400	Upriver, coarse	4$200

New York.

IN REGARD to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows: "During December there has been a fair demand for paper, though not as good as in November, and rates have been a little higher, ruling at 4½@5 per cent. for the best rubber names, and 5½@6 per cent. for those not so well known."

NEW YORK PRICES FOR NOVEMBER (NEW RUBBER).

	1911.	1910.	1909.
Upriver, fine	$0.99@1.06	$1.36@1.52	$1.93@2.03
Upriver, coarse	.87@ .91	1.02@1.07	1.17@1.21
Islands, fine	.93@1.00	1.20@1.28	1.72@1.84
Islands, coarse	.57@ .60	.73@ .75	.69@ .72
Cametá	.60@ .62	.75@ .78	.80@ .84

African Rubbers.

NEW YORK STOCKS (IN TONS).

November 1, 1910	100	June 1, 1911	90
December 1	140	July 1	90
January 1, 1911	115	August 1	90
February 1	115	September 1	112
March 1	11	October 1	67
April 1	98	November 1	45
May 1	98	December 1	60

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

1911.			
July 7	4/2½	October 6	4/7
July 14	4/5½	October 13	4/5
July 21	4/7	October 20	4/6½
July 28	4/8	October 27	4/4
August 4	4/7½	November 3	4/3
August 11	4/7½	November 10	4/4½
August 18	4/7½	November 17	4/3
August 25	4/10½	November 24	4/3½
September 1	4/8½	December 1	4/4½
September 8	4/9	December 8	4/5½
September 15	5/	December 15	4/4½
September 22	4/10½	December 22	4/4
September 29	4/8		

RUBBER ARRIVALS FROM THE CONGO.

NOVEMBER 16, 1911.—BY THE STEAMER *Bruxellesville*:

Bunge & Co	(Société Générale Africaine)	*kilos* 29,000	
Do	(Chemins de fer Grands Lacs)	3,700	
Do	(Comptoir Commercial Congolais)	11,400	
Do	(Alberta)	200	
Société Commerciale Anversoise	(Intertropical)	11,200	
Do	(Cie. franc. do Haut Congo)	5,800	
Do	(Société Comm. and Miniere)	9,600	
L. & W. Van de Velde	(Cie. du Kasai)	70,000	
Do	(Société Comm. and Financ. Africaine)	8,000	
Congo Trading Co		3,000	
E. Van Steensel		4,000	153,850

Rubber and Caucho Receipts at Manaos.

	October.		
FROM—	1911.	1910.	1909.
Rio Purús-Acre .....*tons*	1,602	1,552	709
Rio Madeira	288	363	717
Rio Juruá	133	138	338
Rio Javary-Iquitos	768	657	892
Rio Solimões	107	207	100
Rio Negro	24	1	10
Total	2,922	2,918	2,765
For Shipment From—			
Manáos	1,981	2,054	2,190
Pará	941	864	576
Total	2,922	2,918	2,766

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.				
	Fine and Medium.	Coarse.	Total 1911.	Total 1910.	Total 1909.
Stocks, October 31.....*tons*	310	42 =	352	211	216
Arrivals, November	1,379	504 =	1,883	1,432	1,734
Aggregating	1,689	546 =	2,235	1,643	1,950
Deliveries, November	1,384	493 =	1,877	1,487	1,732
Stocks, November 30....	305	53 =	358	156	218

	PARA.			ENGLAND.		
	1911.	1910.	1909.	1911.	1910.	1909.
Stocks, October 31.*tons*	3,475	875	230	750	1,120	230
Arrivals, November....	3,240	3.550	4,370	1,146	1,098	1,220
Aggregating	6,715	4,425	4,600	1,896	2,218	1,450
Deliveries, November...	3,665	3,235	3,215	961	883	950
Stocks, November 30	3,050	1,190	1,385	935	1,335	500

	1911.	1910.	1909.
World's visible supply, November 30..*tons*	5,529	4,591	3,757
Pará receipts, July 1 to November 30....	11,190	11,085	11,830
Pará receipts of caucho, same dates.....	1,400	2,090	1,530
Afloat from Pará to United States, Nov. 30	256	420	839
Afloat from Pará to Europe, Nov. 30....	930	1,490	815

Rubber Stock at Para

A reduction of stock at Pará brought the quantity on hand November 30 below that of September 30, which had been slightly increased on October 31, thus constituting the lowest point recorded since January last.

1911.	Tons.	1911.	Tons.
January 31.....	2,085	June 30.....	4,545
February 28.....	3,787	July 31.....	3,884
March 31.....	4,214	August 31.....	3,450
April 30.....	5,104	September 30.....	3,102
May 31.....	5,350	October 31.....	3,320
		November 30.....	3,050

Para.

R. O. AHLERS & Co. report [December 1]:

Market has been steady without any alteration of importance.

R. O. AHLERS & Co. REPORT [DECEMBER 11, 1911]:

Market showed a slightly firmer tendency. Reports from Upriver say that the rainy season has set in rather early this year and that the crops of some rivers, like the Javary and Juruá, must be considered as finished.

Liverpool.

WILLIAM WRIGHT & Co. REPORT [DECEMBER 1]:

Fine Pará.—With a dull trade demand the volume of business is small. Market has been subject to speculative manipulation; prices have varied from 4*s.* 2½*d.* to 4*s.* 5*d;* supplies are plentiful (considering the large increase in plantation kinds); consequently there seems to be no reason at present for any heavy advance. On the other hand, manufacturers seem disposed to buy at about 4*s.* 2*d.*, and, speaking generally, we think they are bare of stock, but the unsold speculative stock of 3,500 tons still acts as a drag on the market; the sooner it is cleared out the better for both holders and consumers. Closing value: Hard Fine, 4*s.* 5*d.* [$1.07]; Island, 3*s.* 11*d.* [95 cents]. Receipts for the month are 3,530 tons, including 250 tons Caucho, against 2,990 tons last month and 3,790 tons last year, bringing the crop up to date to 12,170 tons, against 13,140 tons last season. Receipts in December are expected to show an increase of 1,000 tons, against corresponding month of last year. Deliveries for the month are 1,184 tons, against 980 tons last month, and 1,369 tons last year, totaling 6,091 tons, against 4,839 tons in 1910.

Amsterdam

JOOSTEN & JANSSEN report [December 16].

Owing to keen competition, the lots offered for sale 15th inst. were sold at very good prices, except about 8,500 pounds Borneo and 1,000 pounds thick Ceylon crepe which remained unsold. For the latex lots, holder is asking equivalent of $1.24½ per pound. The highest price paid for a lot of palish, part light brown *Heves* crepe equalled $1.23½ per pound, and for fine plantation Rambong up to the equivalent of $1.08 was obtained. The next sales will take place on January 19, 1912.

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weight in Pounds.]

NOVEMBER 27.—By the steamer *Christopher*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold	160,300	18,600	41,500	5,100=	225,500
General Rubber Co.....	76,900	13,200	16,900	.....=	107,000
New York Commercial Co.		7,600	59,600	8,000=	75,200
A. T. Morse & Co.....	25,500	7,000	14,500	.....=	47,000
Hagemeyer & Brunn....	16,800	300	2,600	.....=	19,700
G. Amsinck & Co.....	7,100	400	2,000	700=	10,200
Total	286,600	47,100	137,100	13,800=	484,600

DECEMBER 5.—By the steamer *Pancras*, from Manáos and Pará:

Poel & Arnold.....	135,800	50,200	92,000	25,300=	303,300
New York Commercial Co.	66,100	1,400	70,500	14,400=	152,400
General Rubber Co.....	58,200	15,000	15,900	.....=	89,100
Hagemeyer & Brunn.....	22,500	300	7,300	.....=	30,100
De Lagotellerie & Co.....	11,100	1,100	1,300	.....=	13,500
Total	293,700	68,000	187,000	39,700=	588,400

DECEMBER 15.—By the steamer *Brasil*, from Manáos and Pará:

Poel & Arnold.....	310,600	98,400	210,100	28,600=	647,700
New York Commercial Co...	170,900	15,000	39,500	10,900=	236,300
General Rubber Co.....	91,800	15,500	16,000	3,300=	126,600
A. T. Morse & Co.....	69,100	5,700	36,800	.....=	111,600
Hagemeyer & Brunn.....	26,800	1,000	6,000	.....=	33,800
De Lagotellerie & Co.....	10,700	2,200	4,600	.....=	17,500
G. Amsinck & Co.	4,300	300	6,600	.....=	11,200
Total	684,200	138,100	319,600	42,800=	1,184,700

DECEMBER 21.—By the steamer *Minas Geraes*, from Pará:

Poel & Arnold.....	76,000	18,900	99,100	.....=	194,000
De Lagotellerie & Co.....	82,700	12,600	17,600	.....=	112,900
New York Commercial Co..	5,400	1,600	36,100	11,600=	54,700
Hagemeyer & Brunn.....	18,600	....	3,900	.....=	22,500
A. T. Morse & Co.....	....	....	21,800	.....=	21,800
Total	182,700	33,100	178,500	11,600=	405,900

DECEMBER 23.—By the steamer *Clement*, from Manáos and Pará:

Poel & Arnold.....	338,800	88,300	125,700	14,700=	567,500
New York Commercial Co..	115,400	40,500	20,200	4,800=	180,900
A. T. Morse & Co.....	82,900	20,600	24,300	.....=	127,800
General Rubber Co.....	68,500	14,400	28,000	10,800=	121,700
Henderson & Korn.....	6,400	.....	.....	.....=	6,400
Total	612,000	163,800	198,200	30,300=	1,004,300

PARA RUBBER VIA EUROPE.

POUNDS.

NOVEMBER 24.—By the *Lusitania*=Liverpool:

N. Y. Commercial Co. (Fine)..	56,000	
Poel & Arnold (Fine).....	7,000	
Muller Schall & Co. (Coarse)..	7,000	
In Transit (Fine).....	22,500	92,500

NOVEMBER 25.—By the *Adriatic*=Liverpool:

Robinson & Co. (Fine).....		11,000

NOVEMBER 26.—By the *Pennsylvania*=Hamburg:

Henderson & Korn (Coarse).....		20,000

DECEMBER 1.—By the *Patricia*=Hamburg:

N. Y. Commercial Co. (Coarse).....		30,000

DECEMBER 4.—By the *Campania*=Liverpool:

General Rubber Co. (Fine)....	5,500	
N. Y. Commercial Co.....	7,000	12,500

DECEMBER 5.—By the *Kaiserin Auguste Victoria*=Hamburg:

A. T. Morse & Co. (Coarse)....	60,000	
Rubber Trading Co. (Fine)....	7,000	
Robert Badenhop (Coarse).....	10,000	77,000

DECEMBER 7.—By the *Magdalena*=Mollendo:

A. T. Morse & Co. (Fine).....	10,000	
A. T. Morse & Co. (Caucho)..	30,000	40,000

DECEMBER 8.—By the *Olympic*=London:

Poel & Arnold (Coarse).....		45,000

DECEMBER 11.—By the *New York*=London:

Poel & Arnold (Coarse).....		56,000

DECEMBER 12.—By the *Carmania*=Liverpool:

N. Y. Commercial Co. (Fine)..	136,000	
Poel & Arnold (Fine).....	22,500	
Raw Products Co. (Fine).....	11,500	
J. H. Rossbach & Bros.....	7,000	
Robinson & Co. (Fine).....	5,000	
General Rubber Co. (Coarse)...	4,500	
Raw Products Co. (Coarse)....	5,500	
In Transit (Fine).....	22,500	214,500

DECEMBER 14.—By the *President Lincoln*=Hamburg:

N. Y. Commercial Co. (Fine)..	20,000	
Poel & Arnold (Fine).....	45,000	
Henderson & Korn (Fine).....	8,000	
Wallace L. Gough Co. (Fine)..	9,000	
A. T. Morse & Co. (Coarse)...	25,000	
Robert Badenhop (Coarse).....	5,000	112,000

DECEMBER 21.—By the *Philadelphia*=London:

N. Y. Commercial Co. (Coarse)	22,500	
Poel & Arnold (Coarse).....	8,000	30,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

POUNDS.

NOVEMBER 24.—By the *Morro Castle*=Vera Cruz:

E. Nelson Tibbals & Co.....	2,500	
General Export Comm. Co.....	2,500	
H. Marquardt & Co.....	1,500	6,500

NOVEMBER 24.—By the *Colon*=Colon:

G. Amsinck & Co.....	7,000	
E. Nelson Tibbals & Co.....	6,500	
H. Feltman & Co.....	3,500	
Piza, Nephews & Co.....	3,000	
Lanman & Kemp.....	2,000	
United Export Co.....	1,000	
Mecke & Co.....	1,000	
Suzarte & Whitney.....	1,000	
Wessels, Kulenkampff & Co....	1,000	
Brandon & Bros.....	1,000	27,000

NOVEMBER 27.—By the *Chinese Prince*=Bahia:

J. H. Rossbach & Bros.....	50,000	
Adolph Hirsch & Co.....	40,000	90,000

NOVEMBER 29.—By the *Prinz August Wilhelm*=Colon:

G. Amsinck & Co.....	20,000	
N. Y. Commercial Co.....	4,500	
J. H. Rossbach & Bros.....	2,000	
J. Sambrada & Co.....	2,000	
Mecke & Co.....	1,500	
Caballero & Blanco.....	1,500	
Gillespie Bros. & Co.....	1,000	32,500

DECEMBER 1.—By the *El Dia*=Galveston:

Continental-Mexican Rubber Co.	*110,000	
Charles T. Wilson.....	*7,000	*117,000

DECEMBER 1.—By the *Minneapolis*=London:

Adolph Hirsch & Co.....		33,500

DECEMBER 1.—By the *Santiago*=Tampico:

Ed. Maurer	*100,000	
Continental-Mexican Rubber Co.	*77,000	*177,000

DECEMBER 1.—By the *Proteus*=New Orleans:

G. Amsinck & Co.....	3,000	
A. N. Rotholz.....	3,000	
A. T. Morse & Co.....	2,500	
Robinson & Co.....	2,500	
George A. Alden & Co.....	1,500	16,500

DECEMBER 1.—By the *Monterey*=Frontera:

Harburger & Stack.....	3,000	
E. Steiger & Co.....	2,500	
Lawrence Import Co.....	2,000	
J. W. Wilson & Co.....	2,000	9,500

DECEMBER 4.—By the *Bordeaux*=Havre:

In Transit		13,500

DECEMBER 4.—By the *El Sol*=Galveston:

Continental-Mexican Rubber Co.	*68,000	
Charles T. Wilson.....	*18,000	*86,000

DECEMBER 4.—By the *Campania*=Liverpool:

New York Commercial Co.....		*11,500

DECEMBER 4.—By the *Prinz Eitel Friedrich*=Colon:

G. Amsinck & Co.....	20,000	
Andean Trading Co.....	2,000	
Hawes, Willard & Co.....	2,000	
Wessels, Kulenkampff & Co....	1,000	25,000

DECEMBER 6.—By the *Zeeland*=Antwerp:

New York Commercial Co.....		*190,000

DECEMBER 7.—By the *El Occidente*=Galveston:

Continental-Mexican Rubber Co.	*90,000	
In Transit	*15,000	*105,000

DECEMBER 8.—By the *Mexico*=Frontera:

Harburger & Stack.....	5,500	
A. Klipstein & Co.....	4,500	
Silva, Bussenius & Co.....	2,500	
W. L. Wadleigh.....	1,000	13,500

DECEMBER 9.—By the *Panama*=Colon:

Isaac Brandon & Bros.....	21,000	
E. Nelson Tibbals & Co.....	12,000	
G. Amsinck & Co.....	4,500	
Dumarest Bros. & Co.....	2,000	
Hondo Rubber Estates Co.....	2,000	
Graham, Hinkley & Co.....	1,500	
Pablo, Calvert & Co.....	1,500	
H. Feltman & Co.....	1,000	
Lanman & Kemp.....	1,000	
P. Ebling & Co.....	1,000	47,500

DECEMBER 11.—By the *Guantanamo*=Tampico:

New York Commercial Co.....	*145,000	
Ed. Maurer	*80,000	
American Trading Co.....	*20,000	
For Europe	*70,000	*315,000

DECEMBER 12.—By the *Albingia*=Colombia:

G. Amsinck & Co.....	3,000	
American Trading Co.....	2,500	
Schutte, Bunemann & Co.....	1,000	
J. A. Pauli & Co.....	1,000	
R. Gallego & Co.....	1,000	8,500

DECEMBER 14.—By the *Momus*=New Orleans:

A. T. Morse & Co.....	4,500	
Manhattan Rubber Mfg. Co....	3,500	
Robinson & Co.....	2,500	
G. Amsinck & Co.....	2,000	12,500

DECEMBER 16.—By the *Esperanza*=Vera Cruz:

Rubber Trading Co.....	5,500	
L. Lunde & Co.....	1,500	
Harburger & Stack.....	1,000	
In Transit	1,000	9,000

DECEMBER 16.—By the *California*=Liverpool:

Henderson & Korn.....		13,500

DECEMBER 18.—By the *Prinz Sigismund*=Colon:

G. Amsinck & Co.....	27,000	
Pablo, Calvert & Co.....	1,500	
Mecke & Co.....	1,500	
Maitland, Coppell & Co.....	1,000	
J. J. Julia & Co.....	1,000	32,000

DECEMBER 18.—By the *Yumuri*=Tampico:

New York Commercial Co.....	*67,000	
For Europe	*80,000	*147,000

DECEMBER 20.—By the *El Oriente*=Galveston:

Continental-Mexican Rubber Co.	*125,000	
Charles T. Wilson.....	*6,500	*131,500

DECEMBER 20.—By the *Orotava*=Colombia:

G. Amsinck & Co.....	7,500	
Maitland, Coppell & Co.....	7,000	
J. Sambrada & Co.....	4,500	
A. Helde	3,000	
Caballero & Blanco.....	2,000	
A. M. Capen's Sons.....	2,000	
Gillespie Bros. & Co.....	1,500	
Honduras Rubber Estates Co...	1,000	
Schulz & Ruckgaber.....	1,000	29,500

DECEMBER 22.—By the *Alleghany*=Costa Rica:

G. Amsinck & Co.....	7,000	
R. Castillo & Co.....	3,500	
Frank Lapiedra	2,000	
Gillespie Bros. & Co.....	2,000	
Isaac Brandon & Bros.....	2,000	
A. Helde	1,500	18,000

DECEMBER 23.—By the *Morro Castle*=Vera Cruz:

North American Trading Co....	10,000	
Harburger & Stack.....	5,500	
A. T. Morse & Co.....	4,500	
Lawrence Import Co.....	2,500	
George A. Alden & Co.....	2,500	
Maitland, Coppell & Co.....	2,500	
For Europe	7,000	34,500

AFRICAN.

POUNDS.

NOVEMBER 24.—By the *Mexico*=Havre:

Ed. Maurer	33,500	
A. T. Morse & Co.....	3,500	37,000

NOVEMBER 24.—By the *Lusitania*=Liverpool:

George A. Alden & Co.....		7,000

NOVEMBER 27.—By the *Adriatic*=Liverpool:

General Rubber Co.....		11,500

NOVEMBER 27.—By the *Pennsylvania*=Hamburg:

Wallace L. Gough Co.....	56,000	
Poel & Arnold.....	40,000	
Rubber Trading Co.....	15,000	
George A. Alden & Co.....	13,500	
Robert Badenhop	9,000	
A. T. Morse & Co.....	9,000	
Muller Schall & Co.....	7,000	149,500

NOVEMBER 28.—By the *Cymric*=Liverpool:

General Rubber Co.....	34,000	
Poel & Arnold	22,500	
Wallace L. Gough Co.....	9,000	65,500

DECEMBER 1.—By the *Minneapolis*=London:

Muller Schall & Co.....		11,500

DECEMBER 1.—By the *Nordhavet*=Lisbon:

General Rubber Co.....	45,000	
George A. Alden & Co.....	11,000	56,000

DECEMBER 1.—By the *Patricia*=Hamburg:

George A. Alden & Co.....	22,500	
A. T. Morse & Co.....	11,000	
Robert Badenhop	11,500	
Rubber Trading Co.....	22,000	
Henderson & Korn.....	7,000	
Wallace L. Gough Co.....	7,500	
Ed. Maurer	4,500	86,000

DECEMBER 2.—By the *Finland*=Antwerp:

A. T. Morse & Co.....	11,500	
Robert Badenhop	11,000	22,500

DECEMBER 2.—By the *Cedric*=Liverpool:

Wallace L. Gough Co.....	22,500	
James T. Johnstone.....	9,000	
Robinson & Co.....	4,500	36,000

DECEMBER 4.—By the *Bordeaux*=Havre:

Poel & Arnold.....	15,000	
Muller Schall & Co.....	11,500	26,500

DECEMBER 4.—By the *Campania*=Liverpool:

General Rubber Co.....	22,500	
George A. Alden & Co.....	13,500	
Poel & Arnold.....	3,500	39,500

DECEMBER 5.—By the *Kaiserin Auguste Victoria*=Hamburg:

George A. Alden & Co.....	40,000	
A. T. Morse & Co.....	20,000	
Ed. Maurer	25,000	
Wallace L. Gough Co.....	18,000	
Robert Badenhop	11,500	
Rubber Trading Co.....	7,000	
Henderson & Korn.....	4,500	
Muller Schall & Co.....	3,500	129,500

DECEMBER 5.—By the *Minnetonka*=London:

George A. Alden & Co.....	11,500	
Poel & Arnold.....	5,500	
Henderson & Korn.....	2,500	19,500

DECEMBER 6.—By the *Chicago*=Havre:

Poel & Arnold.....	22,500	
General Rubber Co.....	34,000	56,500

DECEMBER 6.—By the *Zeeland*=Antwerp:

A. T. Morse & Co.....	18,000	
Muller Schall & Co.....	15,000	
Rubber Trading Co.....	3,000	36,000

DECEMBER 8.—By the *Olympic*=London:

Rubber Trading Co.....		9,000

DECEMBER 11.—By the *New York*=London:

General Rubber Co.....	56,000	
Muller Schall & Co.....	8,000	64,000

DECEMBER 12.—By the *Carmania*=Liverpool:

General Rubber Co.....	30,000	
Ed. Maurer	15,000	
George A. Alden & Co.....	7,000	
Poel & Arnold.....	5,500	57,500

DECEMBER 12.—By the *Lapland*=Antwerp:

General Rubber Co.....	85,000	
George A. Alden & Co.....	40,000	
Poel & Arnold.....	75,000	
A. T. Morse & Co.....	13,500	
Muller Schall & Co.....	4,500	
Raw Products Co.....	3,500	221,500

RUBBER FLUX

No. 17. Particularly adapted to softening material for tubing machine. Almost universally used for waterproofing wire.

No. 48. For fluxing pigments in compounding. A valuable adjunct to the manufacture of moulded goods as it DOES NOT BLOW UNDER CURE.

WRITE FOR PRICES.

Massachusetts Chemical Co., Walpole, Mass. SOLE FACTORIES: WALPOLE RUBBER WORKS, WALPOLE VARNISH WORKS, ELECTRIC INSULATION LABORATORY

THEODORE HOFELLER & CO.

LARGEST DEALERS IN OLD RUBBER IN THE WORLD.

Old Rubber

LARGEST DEALERS IN OLD RUBBER IN THE WORLD.

206-226 SCOTT ST. BUFFALO, N. Y.

Sale of Guayule Plant at Marathon, Texas

UNDER ORDER OF COURT

Will sell at the Court House door, in ALPINE, TEXAS, on FEBRUARY 6th, 1912, the plant, lease and machinery of the Texas Rubber Co., Marathon, Texas, consisting of Boilers, Engines, Dynamo, Vacuum Dryers, Vulcanizer, Beater-Washers, Press, Pebble-Mills (8 new, never used), Sheeters, Shafting, Pulleys, etc.

L. B. CARUTHERS

Alpine, Texas.
Dec. 16th, 1911.

Receiver Texas Rubber Co.
and Big Bend Manufacturing Co.

Boston New York

BOSTON YARN CO.

86 Worth Street, New York

MOTOR TIRE FABRICS

"Lowell Weaving Co." "Passaic Cotton Mills"

Yarns for every purpose
Sheetings

Mechanical Ducks
Osnaburgs

Auto Top Ducks
Specialties in Weaving

ED. MAURER

Representing the Madero interests of Mexico for

Guayule Rubber

PARRA DURANGO

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BRANDS

BORNEOS

Sole agent for U. S. and Canada of the well known brands

FFF, FF, GS and SM.

Headquarters for

Surinam and Demerara Sheet Balata
Venezuelan Block Balata

Ceylon Plantation Rubber

---

97 WATER STREET . NEW YORK

DECEMBER 14.—By the *Oceanic*=London:

General Rubber Co.		90,000

DECEMBER 14.—By the *President Lincoln*=Hamburg:

Poel & Arnold	40,000	
George A. Alden & Co.	22,500	
General Rubber Co.	11,500	
Wallace L. Gough Co.	16,000	
Robert Badenhop	5,500	
Rubber Trading Co.	9,000	104,500

DECEMBER 16.—By the *Laurentic*=Liverpool:

George A. Alden & Co.	18,000	
James T. Johnstone	11,500	
Poel & Arnold	11,000	
Raw Products Co.	7,000	47,500

DECEMBER 19.—By the *Minnewaska*=London:

Poel & Arnold	16,000	
George A. Alden & Co.	15,000	
Henderson & Korn	20,000	
Raw Products Co.	3,500	54,500

DECEMBER 21.—By the *Kroonland*=Antwerp:

Poel & Arnold	11,500	
Henderson & Korn	7,000	
A. T. Morse & Co.	3,500	22,000

DECEMBER 22.—By the *Amerika*=Hamburg:

Poel & Arnold	22,500	
George A. Alden & Co.	11,000	
Wallace L. Gough Co.	13,500	
Robert Badenhop	7,000	54,000

EAST INDIAN.

[*Denotes Plantation Rubber.]

POUNDS.

NOVEMBER 24.—By the *Lusitania*=Liverpool:

Ed. Maurer	*22,500	
William H. Stiles	*10,000	*22,500

NOVEMBER 28.—By the *Aymeric*=Colombo:

A. T. Morse & Co.	*70,000	
New York Commercial Co.	*20,000	
Poel & Arnold	*3,500	*93,500

DECEMBER 1.—By the *Minneapolis*=London:

General Rubber Co.	*80,000	
Poel & Arnold	*25,000	
A. T. Morse & Co.	*15,000	
Henderson & Korn	*20,000	*140,000

DECEMBER 1.—By the *St. Louis*=London:

New York Commercial Co.	*25,000	
Poel & Arnold	*40,000	
L. Littlejohn & Co.	*11,000	
In Transit	*22,500	
Poel & Arnold	8,000	106,500

DECEMBER 1.—By the *Patricia*=Hamburg:

Rubber Trading Co.		8,000

DECEMBER 2.—By the *Finland*=Antwerp:

A. T. Morse & Co.		*11,500

DECEMBER 4.—By the *Campania*=Liverpool:

Ed. Maurer	*15,000	
Henderson & Korn	*11,500	*26,500

DECEMBER 4.—By the *Roseric*=Singapore:

Ed. Maurer	*27,000	
L. Littlejohn & Co.	*17,500	
New York Commercial Co.	*7,000	
Wallace L. Gough Co.	*9,000	
Heabler & Co.	*9,000	
A. W. Brunn	*5,000	
L. Littlejohn & Co.	20,000	
Ed. Maurer	9,000	
Heabler & Co.	9,000	
Wallace L. Gough Co.	4,500	116,000

DECEMBER 5.—By the *Minnetonka*=London:

Poel & Arnold	*45,000	
Ed. Maurer	*11,500	
A. T. Morse & Co.	*11,500	
Henderson & Korn	*11,000	
General Rubber Co.	*56,000	
In Transit	*22,500	
Raw Products Co.	11,500	169,000

DECEMBER 6.—By the *Zeeland*=Antwerp:

A. T. Morse & Co.	*20,000	
Muller Schall & Co.	*3,500	*23,500

DECEMBER 8.—By the *Olympia*=London:

Poel & Arnold	*25,000	
Poel & Arnold	34,000	*59,000

DECEMBER 11.—By the *New York*=London:

New York Commercial Co.	*22,500	
Poel & Arnold	*10,000	
Ed. Maurer	*9,000	*41,500

DECEMBER 11.—By the *Neuenfels*=Colombo:

A. T. Morse & Co.	*50,000	
New York Commercial Co.	*25,000	*75,000

DECEMBER 12.—By the *Minnehaha*=London:

General Rubber Co.	*22,500	
Poel & Arnold	*13,500	
A. T. Morse & Co.	*5,000	
L. Littlejohn & Co.	*7,000	*48,000

DECEMBER 14.—By the *Oceanic*=London:

New York Commercial Co.	*56,000	
Ed. Maurer	*50,000	*106,000

DECEMBER 14.—By the *President Lincoln*=Hamburg:

Wallace L. Gough Co.		*9,000

DECEMBER 18.—By the *Satsuma*=Singapore:

New York Commercial Co.	*19,000	
L. Littlejohn & Co.	*11,500	
Heabler & Co.	*5,500	
L. Littlejohn & Co.	22,500	
Otto Isenstein & Co.	11,000	
Poel & Arnold	11,500	
Heabler & Co.	22,500	
Manhattan Rubber Mfg. Co.	15,000	*118,500

DECEMBER 19.—By the *Minnewaska*=London:

General Rubber Co.	*150,000	
Henderson & Korn	*55,000	
New York Commercial Co.	*25,000	
Robinson & Co.	*13,500	
Poel & Arnold	*13,500	
Ed. Maurer	*7,000	
A. T. Morse & Co.	*7,000	
L. Littlejohn & Co.	*8,000	
Charles T. Wilson	*7,000	
Poel & Arnold	5,000	291,000

DECEMBER 21.—By the *Kroonland*=Antwerp:

A. T. Morse & Co.		*45,000

DECEMBER 21.—By the *Philadelphia*=London:

New York Commercial Co.	*40,000	
Ed. Maurer	*13,500	
Poel & Arnold	*11,500	
Henderson & Korn	*5,000	*70,000

DECEMBER 22.—By the *Welsh Prince*=Singapore:

New York Commercial Co.	*20,000	
Ed. Maurer	*20,000	
L. Littlejohn & Co.	*7,000	
Wallace L. Gough Co.	*5,500	
Manhattan Rubber Mfg. Co.	*35,000	*87,500

DECEMBER 23.—By the *Netherby Hall*=Colombo:

A. T. Morse & Co.	*13,500	
Thomson & Co.	*2,500	*16,000

GUTTA-JELUTONG.

POUNDS.

DECEMBER 4.—By the *Roseric*=Singapore:

L. Littlejohn & Co.	1,000,000	
Wallace L. Gough Co.	600,000	
Haebler & Co.	1,300,000	
George A. Alden & Co.	235,000	
Poel & Arnold	135,000	
Robinson & Co.	110,000	3,380,000

DECEMBER 6.—By the *Chicago*=Havre:

L. Littlejohn & Co.		220,000

DECEMBER 14.—By the *President Lincoln*=Hamburg:

George A. Alden & Co.		85,000

DECEMBER 18.—By the *Satsuma*=Singapore:

L. Littlejohn & Co.	300,000	
Haebler & Co.	200,000	
Wallace L. Gough Co.	200,000	
George A. Alden & Co.	110,000	
Poel & Arnold	55,000	
A. W. Brunn	55,000	920,000

DECEMBER 22.—By the *Welsh Prince*=Singapore:

Haebler & Co.	135,000	
Wallace L. Gough Co.	80,000	
L. Littlejohn & Co.	250,000	
A. W. Brunn	55,000	520,000

GUTTA-PERCHA.

POUNDS.

DECEMBER 5.—By the *Kaiserin Auguste Victoria*=Hamburg:

Robert Soltau & Co.		20,000

DECEMBER 22.—By the *Welsh Prince*=Singapore:

L. Littlejohn & Co.		45,000

BALATA.

POUNDS.

NOVEMBER 29.—By the *Saramaca*=Bolivar:

G. Amsinck & Co.	34,000	
George A. Alden & Co.	22,500	
Iglesia Lobo & Co.	5,500	
Schutte, Bunemann & Co.	5,500	
Middleton & Co.	3,000	70,500

DECEMBER 1.—By the *Guiana*=Demerara:

Ed. Maurer		25,000

DECEMBER 5.—By the *Minnetonka*=London:

R. & J. Dick, Limited		9,000

DECEMBER 6.—By the *Marowijne*=Trinidad:

Islegia Lobo & Co.	5,500	
Kunhardt & Co.	2,500	
Middleton & Co.	2,500	10,500

DECEMBER 13.—By the *Coppename*=Demerara:

Ed. Maurer	11,500	
Middleton & Co.	11,000	22,500

DECEMBER 18.—By the *Parina*=Demerara:

Ed. Maurer	11,500	
Middleton & Co.	4,500	16,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—NOVEMBER.

Imports:	Pounds.	Value.
India-rubber	7,631,102	$5,973,517
Balata	244,470	145,216
Guayule	656,184	287,519
Gutta-percha	130,669	31,928
Gutta-jelutong (Pontianak)	742,152	34,175
Total	9,404,577	$6,472,355
Exports:		
India-rubber	78,283	$72,252
Balata	10,370	5,893
Guayule	2,112	1,261
Gutta-percha	.....	.....
Reclaimed rubber	38,297	10,276
Rubber scrap, imported	774,061	$63,607
Rubber scrap, exported	342,198	43,941

BOSTON ARRIVALS.

POUNDS.

NOVEMBER 10.—By the *Katuna*=Singapore:

Wallace L. Gough Co (Jelutong)		22,500

NOVEMBER 23.—By the *Ivernia*=Liverpool:

Poel & Arnold (African)		11,300

NOVEMBER 29.—By the *Roseric*=Singapore:

State Rubber Co. (East Indian)	*4,500	
State Rubber Co. (Jelutong)	449,000	
L. Littlejohn & Co. (Gutta-percha)	33,500	
L. Littlejohn & Co. (Jelutong)	167,000	654,000

PARA EXPORTS OF INDIA RUBBER, OCTOBER, 1911 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS—	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Gruner & Co.	262,814	40,788	176,450	37,196	517,248	210,768	19,777	37,424	16,829	284,798	802,046
Gordon & Co.	110,330	12,580	96,690	2,970	222,570	48,894	4,105	1,596	17,870	72,465	295,035
Ad. H. Alden, Limited	55,922	7,116	45,082	330	108,450	89,606	6,366	21,656	5,280	122,908	231,358
Suarez Hermanos & Co., Limited	.....	.....	.....	.....	.....	64,113	2,690	9,981	27,013	103,797	103,797
De Lagotellerie & Co.	71,570	5,610	22.770	.....	99,950	.....	.....	.....	.....	.....	99,950
R. O. Ahlers & Co.	.....	.....	.....	.....	.....	50,091	320	8,284	7,029	65,724	65,724
Pires, Teixeira & Co.	17,340	680	6,600	.....	24,620	19,720	.....	4,290	.....	24,010	48,630
Nunes Sobrinho & Co.	27,370	1,020	5,280	.....	33,670	5,100	170	.....	.....	5,270	38,940
Sundries	4,760	.....	4,950	.....	9,710	.....	.....	.....	.....	.....	9,710
Itacoatiara, direct	.....	.....	.....	.....	.....	900	150	998	.....	2,048	2,048
Manáos, direct	432,286	97,934	92,451	17,681	640,352	320,759	99,348	48,558	22,929	491,594	1,131,946
Total, October, 1911	982,392	165,728	450,273	58,177	1,656,570	809,951	132,926	132,787	96,950	1,172,614	2,829,184
Total, September, 1911	927,165	175,126	397,339	47,649	1,547,279	632,419	83,374	134,609	160,389	1,010,791	2,558,070
Total, August, 1911	419,044	110,293	376,797	115,523	1,021,857	638,349	65,625	162,053	322,223	1,188,250	2,210,107
Total, July, 1911	294,212	62,865	347,130	214,267	918,474	599,843	96,127	103,983	335,317	1,135,270	2,053,744

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Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to November 20, 1910 and 1911. Compiled by the Ceylon Chamber of Commerce.]

	1910.	1911.
To Great Britain ... *pounds*	1,332,477	2,811,151
To United States ...	1,335,308	1,568,339
To Belgium ...	39,993	641,783
To Japan ...	1,480	49,308
To Germany ...	12,184	44,338
To Australia ...	4,604	38,865
To Canada ...	7,476	13,830
To Holland ...	.....	12,893
To Italy ...	1,909	8,460
To Straits Settlements ...	.....	3,216
To Austria ...	.....	3,088
To India ...	.....	196
To France ...	.....	117
To Africa ...	.....	35
Total ...	2,735,431	5,195,619

[Same period 1909, 1,139,702 pounds; same 1908, 679,224.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

From—	1909.	1910.	1911.
Singapore (to October 29) .. *pounds*	2,068,008	2,980,439	5,291,205
Penang (to October 15) ...	1,810,013	1,826,149	3,828,656
Port Swettenham (to August 31) ..	.....	5,410,735	7,488,322
Total ...	3,878,021	10,217,323	16,608,183

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are unchanged:

	January 1, 1912.
Old rubber boots and shoes—domestic ...	9¼@ 9⅜
Old rubber boots and shoes—foreign ...	9⅛@ 9¼
Pneumatic bicycle tires ...	4½@ 4¾
Automobile tires ...	8¼@ 8½
Solid rubber wagon and carriage tires ...	9¼@ 9¾
White trimmed rubber ...	11 @11½
Heavy black rubber ...	4¾@ 5
Air brake hose ...	4½@ 4¾
Garden hose ...	1¼@ 1⅜
Fire and large hose ...	2 @ 2¼
Matting ...	⅞@ 1

UNITED STATES RUBBER CO. IN SUMATRA.

The following paragraph relative to the plantation enterprise of the United States Rubber Co. in the Middle East appeared in a recent issue of "The Malay Mail," and is credited to a New York source. It states "that with the recent purchase of 70,000 acres of land from the New Asahan Tobacco Co., the United States Rubber Co., through its subsidiary the General Rubber Co., has acquired 83,000 acres of land in Sumatra. Prior to this last purchase the rubber company secured two parcels of land of 10,000 and 3,000 acres respectively. On the latter a large number of rubber trees have already been planted. The purchase from the New Asahan Tobacco Co. is regarded by the management of the rubber company as particularly valuable. It is authoritatively stated that when these 83,000 acres are producing, the United States Rubber Co. will be in an independent position with respect to the crude product. In buying these lands in the Far East no effort has been made to control the crude rubber supply. The only idea has been to strengthen the position of the United States Co., particularly during periods of extreme fluctuation, such as have prevailed in the trade for some time."